

WILDLIFE ECOLOGY

A NATURAL HISTORY STUDY of BEXHILL · on · sea

**BOOK 2 – WOODLAND
GRASSLAND
WETLAND
PONDS & STREAMS**



THE WOODLAND HABITAT

THIS BOOK IS A PERSONALIZED COPY BELONGING TO

Mr and Mrs WALSH

.....

FOR ATTENDING THE BASIC COURSE ON LOCAL WILDLIFE
ECOLOGY AND NATURAL HISTORY AT BEXHILL COLLEGE
GIVEN BY HASTINGS COLLEGE OF ARTS AND TECHNOLOGY
DEPT. OF ADULT AND COMMUNITY EDUCATION

TO PROMOTE AN AWARENESS OF OUR VANISHING WILDLIFE
AND THE HABITATS WHERE THEY LIVE.

ILLUSTRATIONS AND TEXT BY DEREK BATES.....

1986

MT and Mrs WALSH

THE WOODLAND HABITAT

The county of Sussex is one of the most wooded in Britain, and the following list of trees are the true native trees of Bexhill which have existed since the last ice age about 10,000 years ago (at that time Britain was part of the European land mass.)

As the climate grew warmer trees like the Hazel, Scots Pine, Birch and Elm established themselves in Britain and then about 7000 years ago the English channel was formed by melting glaciers and so formed a natural barrier.

There were 35 species of tree in Britain at that time which establishes our native trees.

Descendants can be found in Bexhill today:-

Pedunculate oak.

Common Alder

Aspen

Common Ash

Beech

Yew

Crab Apple

Crack Willow

Birch

Field maple

Hawthorn

Hazel

Holly

Hornbeam

Rowan

Scots Pine

Sessile Oak - not common in Bexhill - Have you seen this tree?

Small leaved Lime

Wych Elm.

Strawberry tree.

During the past 7000 years

These trees have grown naturally over the County without the assistance of man.

There are 35 different species native to Britain.



Male catkins
of the Alder

Sweet Chestnut (Romans)

Horse Chestnut (17th Century)

Walnut (Romans)

Cedar (17th Century)

Norway spruce (Christmas tree)

Sycamore (16th Century)

Other ornamental trees

These trees introduced
by man.

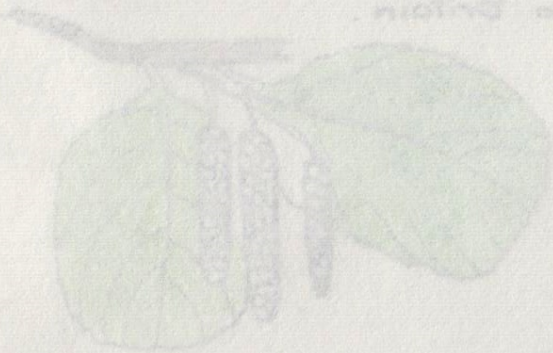
THE WOODLAND HABITAT

The county of Sussex is one of the most wooded in Britain and the following list of trees are the true native trees of Sussex which have existed since the last ice age about 10,000 years ago (at that time Britain was part of the European land mass). As the climate grew warmer trees like the Holly, Dog Rose, Birch and Elm established themselves in Britain and then about 7,000 years ago the English channel was formed by melting glaciers and so formed a natural barrier. There were 35 species of trees in Britain at that time which established our native trees.

Descendants can be found in Sussex today.

During the past 7,000 years these trees have grown naturally over the county without the assistance of man. There are 35 different species native to Britain.

Red catkins of the Alder

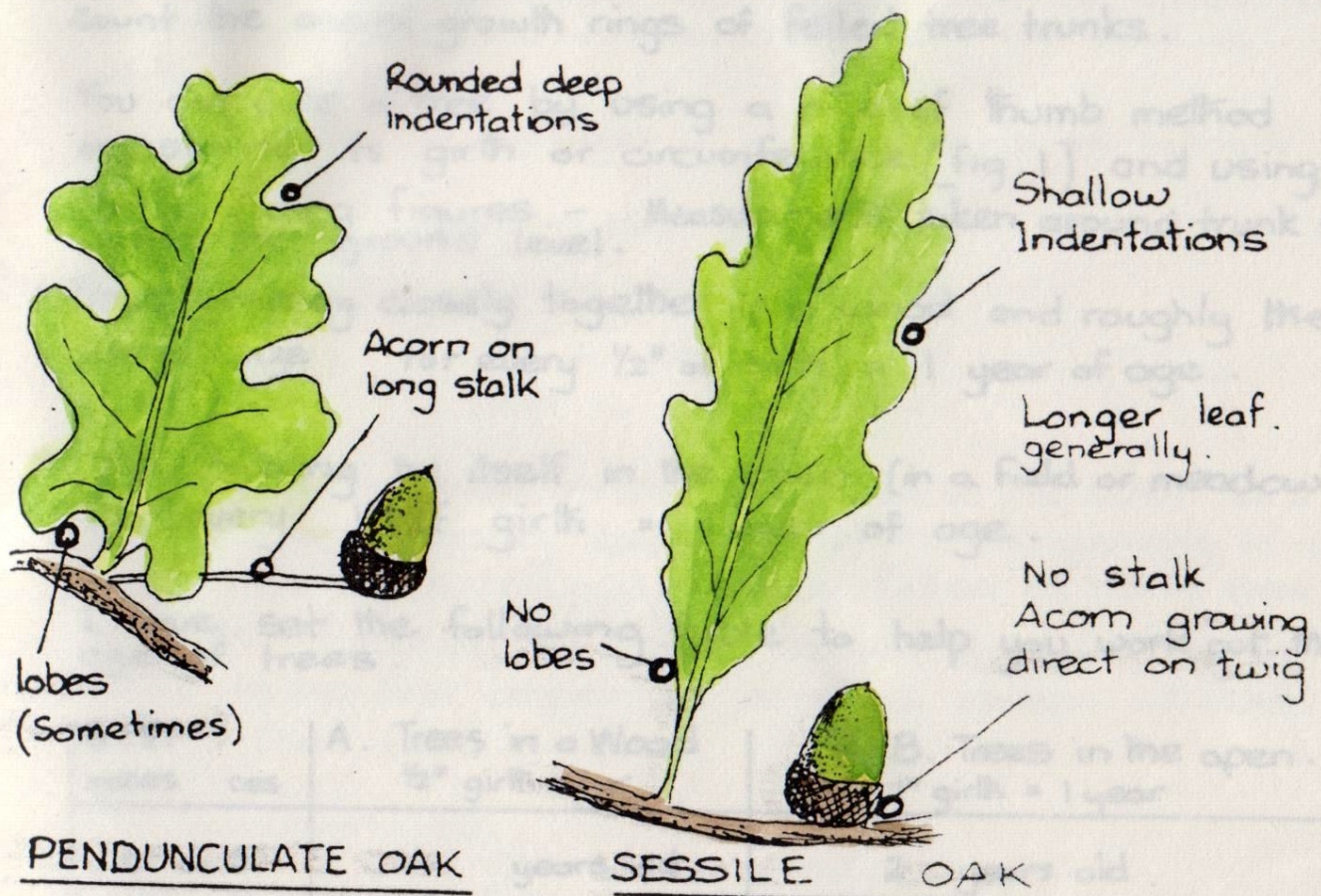


Small leaved trees - not common in Sussex - have you seen the tree?

- Redunculate Oak
- Common Alder
- Alder
- Common Ash
- Beech
- Yew
- Crab Apple
- Crack Willow
- Birch
- Field maple
- Hawthorn
- Hazel
- Holly
- Rainbow
- Roman
- Scots Pine
- Sessile Oak - not common in Sussex - have you seen the tree?
- Small leaved trees
- Wych Elm
- Strawberry tree

These trees introduced by man.

- Sweet Chestnut (Romans)
- Horse Chestnut (17th Century)
- Walnut (Romans)
- Cedar (17th Century)
- Norman spruce (Christmas tree)
- Sycamore (14th Century)
- Other ornamental trees



Can you spot the difference!

PROJECT

When you next go on a woodland walk look under oak trees growing in area and bring :-

1. Sample of a leaf (flatten under a book)
2. Sample of the acorn (from the same tree as the leaf).

TREES - GENERAL :-

Deciduous trees (Broadleaved) Hardwood

Coniferous trees (Needle leaved) Softwood

A tree grows from the tips of branches by adding more wood. The trunk increases in girth not height. If a branch rises with a growing trunk, a child's swing hung from that branch would slowly rise out of reach - which is ridiculous!

If a section of a trunk is studied each ring represents one year's growth - dry years can be seen if the rings are closer together.

If a section of a trunk is studied each ring represents one years growth - old years can be seen if the rings are close together.

A tree grows from the tip of branches by adding more wood. The trunk increases in girth not height. If a branch rises with a growing trunk a circle showing ring from that branch would show out of reach, which is ridiculous!

Coniferous trees (needle leaves) Softwood
Deciduous trees (Broadleaved) Hardwood

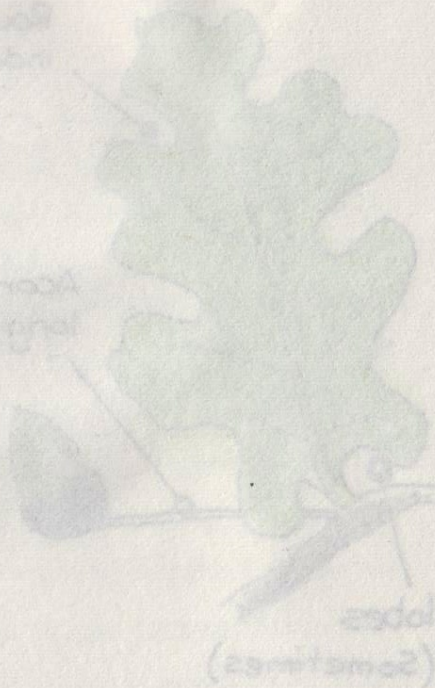
TREES - GENERAL :-

1. Sample of a leaf (flatter under a book)
2. Sample of the acorn (from the same tree as the leaf)
When you next go on a woodland walk
look under oak trees growing in
area and bring

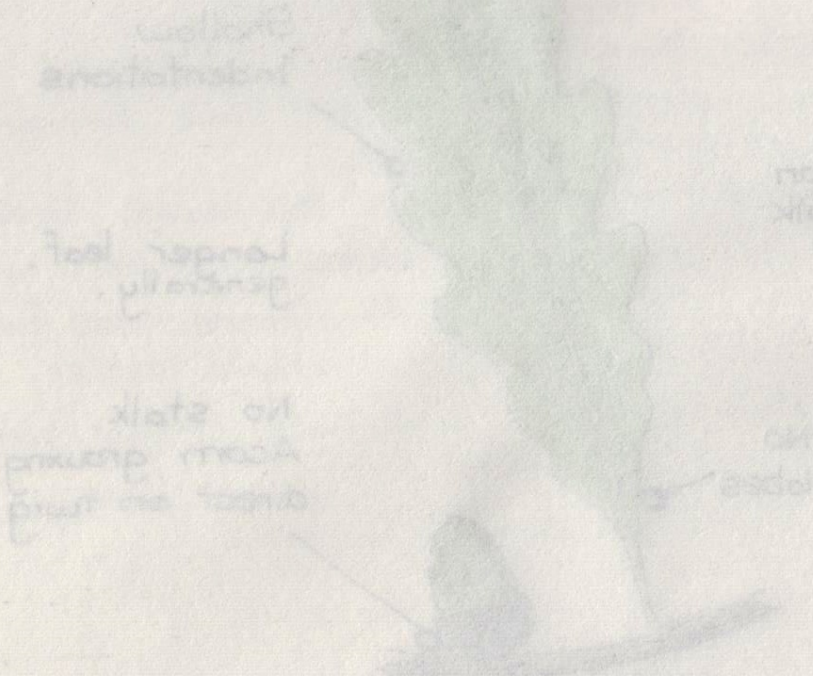
PROJECT

Can you spot the difference?

PENDUNCULATE OAK



SESSILE OAK



ESTIMATING THE AGE OF A TREE

Count the annual growth rings of felled tree trunks.

You can date a tree by using a rule of thumb method measuring its girth or circumference (fig. 1) and using the following figures: - Measurements taken around trunk 5 feet above the ground level.

A. Trees growing closely together in a wood and roughly the same size For every $\frac{1}{2}$ " of girth = 1 year of age.

B Tree growing by itself in the open (in a field or meadow) For every 1" of girth = 1 year of age.

I have set the following table to help you work out the age of trees.

Girth inches cms	A. Trees in a Wood $\frac{1}{2}$ " girth = 1 yr	- B. Trees in the open. 1" girth = 1 year
2" or 5	4 years old.	2 years old.
4" or 10	8 "	4 "
6" or 15	12 "	6 "
8" or 20	16 "	8 "
10" or 25	20 "	10 "
20" or 51	40 "	20 "
30" or 76	60 "	30 "
40" or 102	80 "	40 "
50" or 127	100 "	50 "
60" or 152	120 "	60 "

A tree growing on the edge of a woodland (Not hemmed in) could be taken as $\frac{3}{4}$ " of girth for every year. (or between the above figures).

These figures are only approximate, but it is a recognized method which has been worked out for average rate of growth, and found suitable for most trees.

Note: These figures however should not be used for Yew trees and some coniferous (the latter has very rapid

ESTIMATING THE AGE OF A TREE

Count the annual growth rings of felled tree trunks.

You can also estimate the age of a tree by measuring its trunk diameter.

Measure the trunk diameter at a point where the trunk is straight and free of buttresses or other irregularities.

Use the following table to estimate the age of a tree from its trunk diameter.

A tree growing in a sunny, open area will have a diameter of about 12" at age 100.

A tree growing in a shady, wooded area will have a diameter of about 10" at age 100.

I have used the following table to help you estimate the age of a tree.

Trunk Diameter (inches)	Estimated Age (years)	Trunk Diameter (inches)	Estimated Age (years)
4"	20	16"	80
6"	30	18"	90
8"	40	20"	100
10"	50	22"	110
12"	60	24"	120
14"	70	26"	130
16"	80	28"	140
18"	90	30"	150
20"	100	32"	160
22"	110	34"	170
24"	120	36"	180
26"	130	38"	190
28"	140	40"	200
30"	150	42"	210
32"	160	44"	220
34"	170	46"	230
36"	180	48"	240
38"	190	50"	250
40"	200	52"	260
42"	210	54"	270
44"	220	56"	280
46"	230	58"	290
48"	240	60"	300

A tree growing on the edge of a woodland (not hemlock) will have a diameter of about 10" at age 100.

These figures are only approximate, but they are a reasonable estimate of the age of a tree from its trunk diameter.

Use these figures as a guide only. They should not be used for scientific purposes.

rate of growth in comparison to the deciduous trees). We know that Yew trees attain great age by Historic records but their growth rate fluctuates, similarly the trunk is difficult to measure.

A rough guide to the age of a yew tree is as follows:-

8 feet girth	= 100 to 150 years old .
16 feet "	= 300 to 400 years old .
20 feet "	= 500 to 600 " "
30 feet "	= 850 to 1000 " "

Care should be taken measuring a tree in the open as it may of course already spent part of its life growing in a wood and the surrounding trees felled at some time or other. Evidence of this is usually apparent by the height to the first branch or remaining stumps of felled trees. (see fig 2

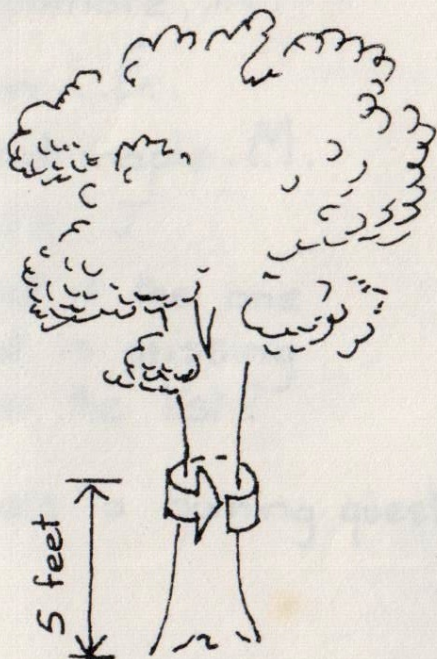


Fig 1

Measuring girth of a tree.



Fig 2 .

Typical tree growing in a wood. Tall and branches high
Narrow spread.



Fig.3 .

Typical tree growing singularly and in the open. Thick trunk
Low branches.
Wide spread.

Questions

Can you estimate the age of the following trees (using the table)

Trees in the open.

12" girth?

48" girth?

25 cms girth?

Trees in a Wood.

5" girth?

35" girth?

102 cms girth?

rate of growth is compared to the diameter (d.b.h.)
 We know that trees often grow by increasing
 but their growth rate fluctuates, and it is
 difficult to measure.

A rough guide to the age of a tree is as follows -

6 feet girth	• 100 to 150 years old
12 feet	• 200 to 300 years old
20 feet	• 300 to 500 years old
30 feet	• 500 to 1000 years old

Care should be taken measuring a tree in the open as it
 may of course already have part of its life growing in a
 wood and the surrounding trees killed at some time
 or other. Evidence of this is usually apparent by the
 height to the first branch or remaining stumps of killed
 trees. (see fig 2)



Fig 3

Fig 2

Fig 1

Typical tree growing
 in a wood. Tall and
 straight. Little or no
 spreading.

Typical tree growing
 in a wood. Tall and
 branched high
 narrow spread.

Measuring girth of
 a tree

Questions

Can you estimate the age of the following trees (using the table)
 Trees in the open
 15' girth?
 40' girth?
 25' girth?

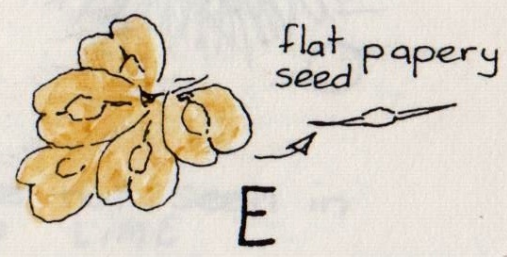
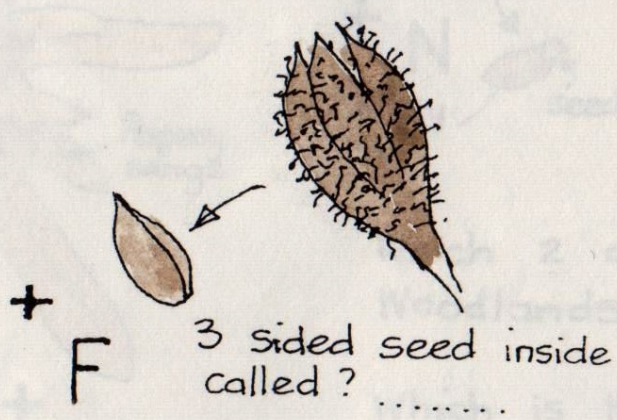
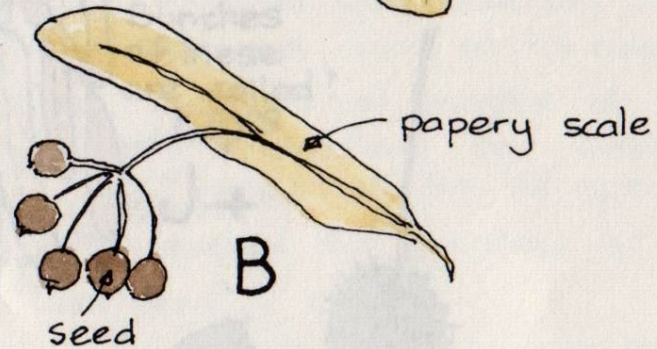
CAN YOU MATCH THE FRUIT WITH THE FOLLOWING TREES ?

- Beech **F**
- Pedunculate Oak **I**
- Yew **C**
- Horse chestnut **D**
- Lime **B**
- Hornbeam **P**
- Sweet Chestnut **O**
- Scots Pine **N**
- Birch **H**
- Hazel **L**
- Plane **K**
- Alder **G**
- Sycamore **A**

- Elm **E**
- Field maple **M**
- ASH J**

What is the one that is missing from the list ?

(Thats a burning question!)



Continued over >

+...Denotes example available.

+...Denotes example available.

Continued over 4

F
called?
3 seed inside



(That's a burning question!)

from the list?
that is missing
What is the one

ASH J

Field maple M.

Elm... E.

Sycamore... A.

Alder... G.

Pine... K.

Hazel... L.

Birch... H.

Scots Pine N.

Sweet Chestnut Q.

Hornbeam... P.

Lime... B.

Home chestnut J.

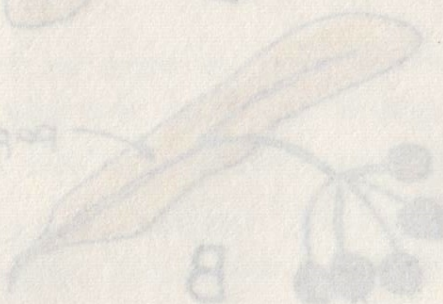
Yew... C.

Redunculate Oak I.

Beech... F.

B

seed

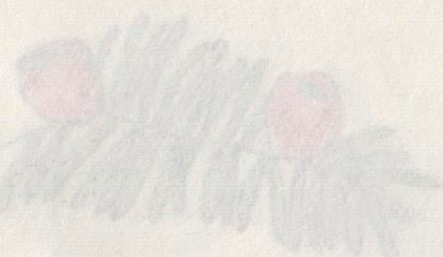


peppery scale

A +



C



Red chestnut
fruit with hard
seed seed inside

D

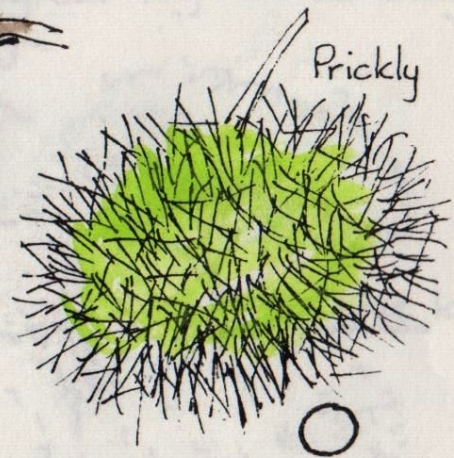
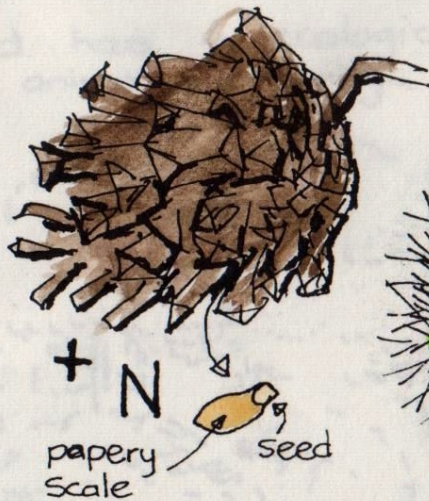
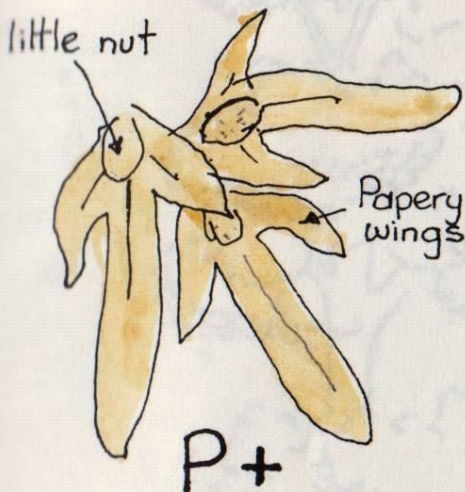
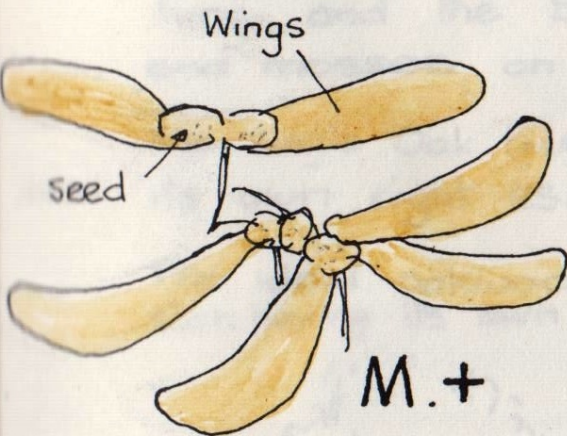
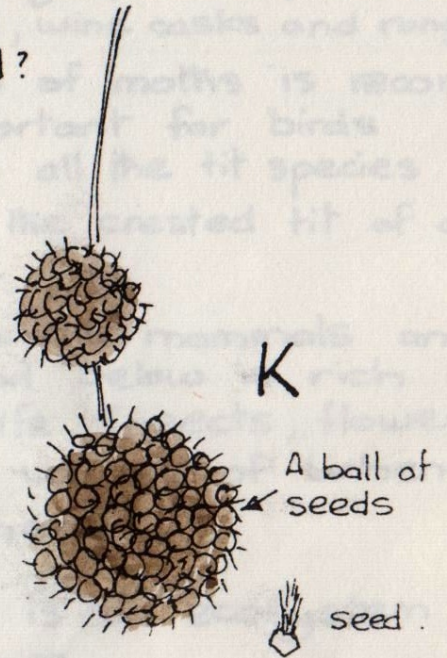
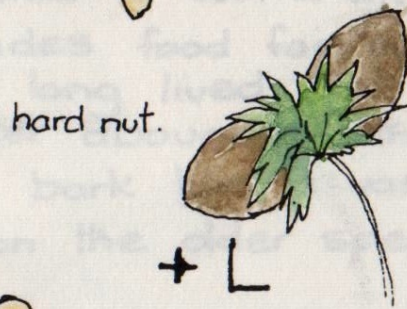
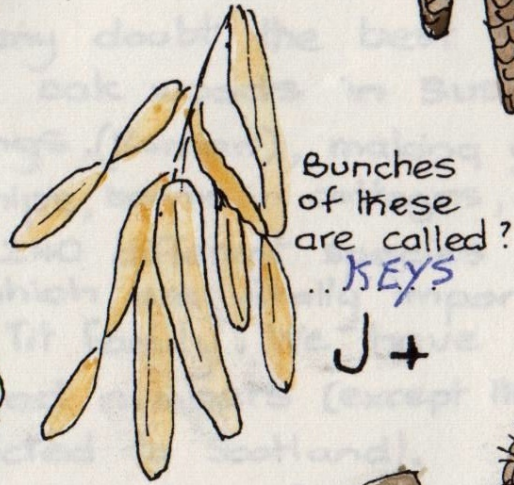
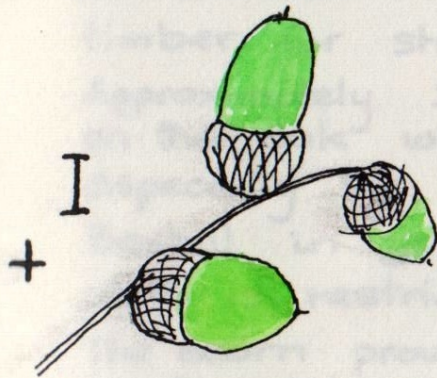
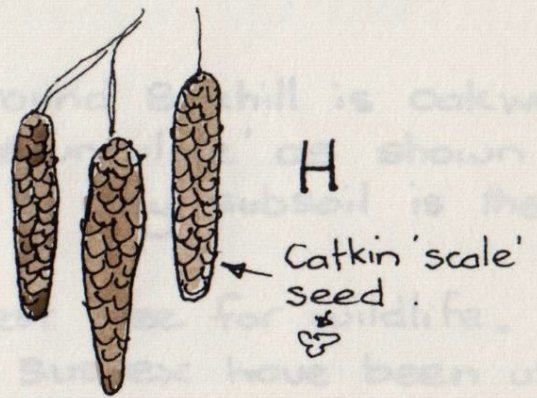
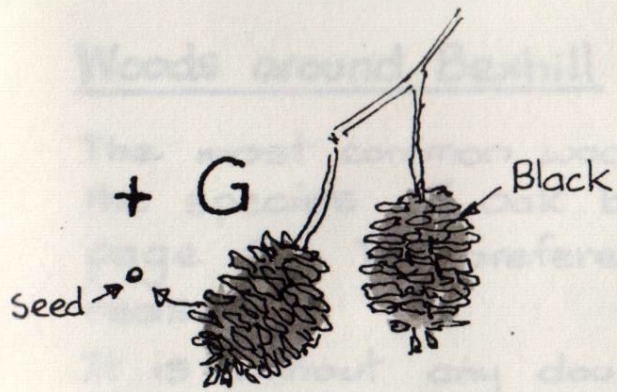


Seed
inside
shell

E



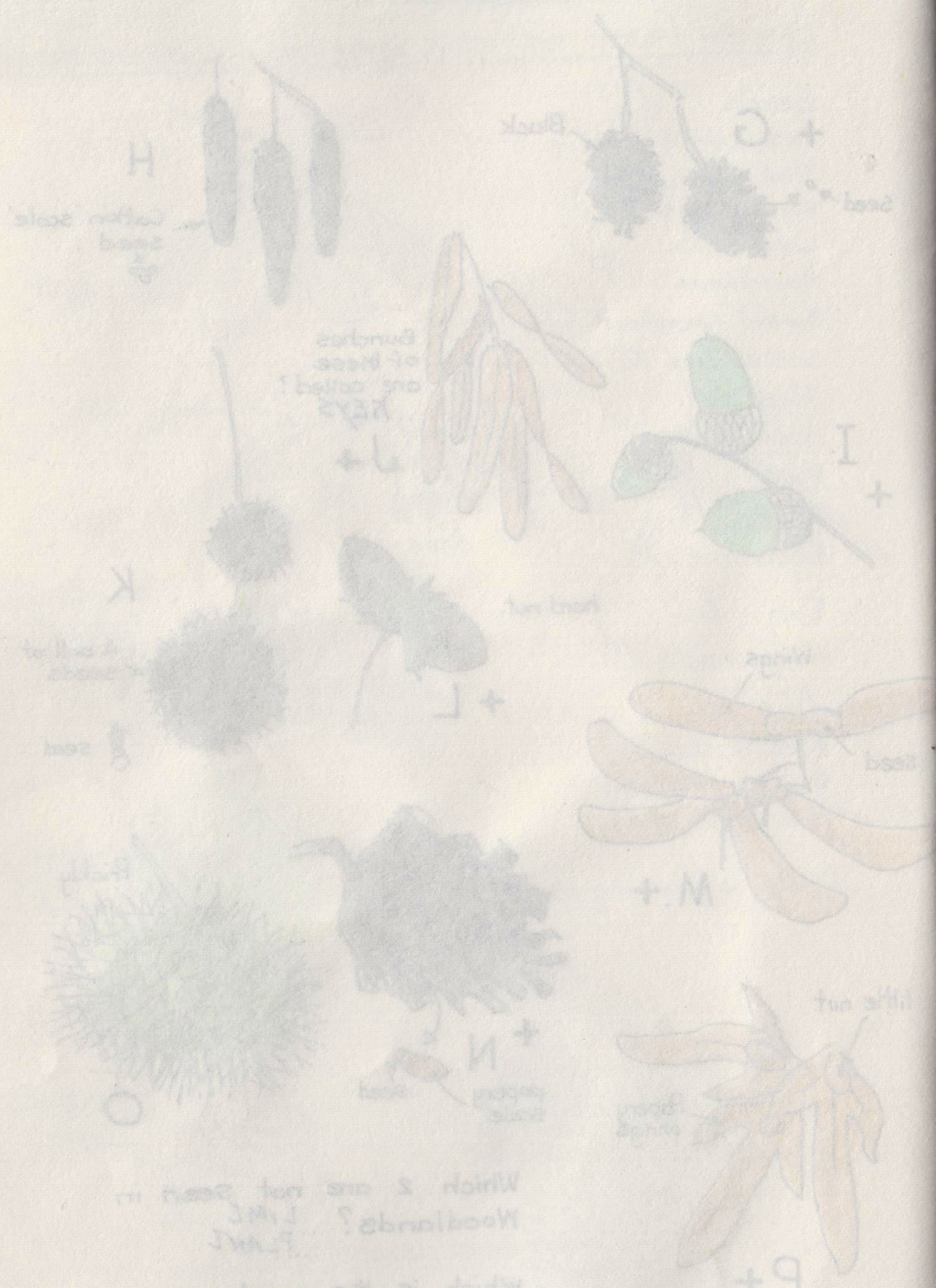
flat paper
seed



Which 2 are not seen in Woodlands? **LIME**
PLANE

Which is the most commonest in Bexhill?
(A hard question!) **BIRCH**

(A hard question!)
 BIRCH
 is Gerbill?
 Which is the most common?
 Woodlands? LIME
 Which 2 are not seen in
 PLANT



Woods around Bexhill

The most common woodland around Bexhill is oakwoods the species of oak being 'Pendunculate' as shown on page 2. Its preference for a clay subsoil is the reason.

It is without any doubt the best tree for wildlife.

Historically the oak woods in Sussex have been used for Iron workings, (Roman), making gunpowder, tanning, timber for ships, beams in cottages, wine casks and rungs.

Approximately 240 different species of moths is recorded on the oak which are vitally important for birds especially the Tit family. We have all the tit species in Bexhill in good numbers (except the crested tit of course which is restricted to Scotland).

The acorn provides food for birds and mammals and as the Oak is long lived the soil below is rich and the leaf litter abounds with life. Insects, flowers, & Fungi and the bark has a vast variety of Lichens and mosses on the older specimens.

The single Oak tree as you can see is an ecosystem in its own right especially if its mature.

The ideal oakwood has 4 ecological layers as diagram



Woods around Bethell

The most common woodland around Bethell is oakwoods. The species of oak being *Quercus petraea* as shown on page 2. Its preference for a clay subsoil is the reason.

It is without any doubt the best tree for wildlife. Historically the oak woods in Sussex have been used for iron workings (ironing), making gunpowder, tanning, timber for ships, beams in cottages, wine casks and tongs. Approximately 250 different species of moths is recorded on the oak which are vitally important for birds especially the 17 family. We have all the 17 species in Bethell in good numbers (except the smallest 17 of course which is restricted to Southdown).

The oaks provides food for birds and mammals and as the oak is long lived the soil below is rich and the leaf litter decomposes with the 17 species flowers, fungi and the bark has a vast variety of lichens and mosses on the older specimens.

The larger oak tree as you can see is an *ecological* in its own right especially if its moths.

The ideal oakwood has 4 ecological layers as diagram illustrating its own animal community.



Ground layer Small plants, grasses, leaf litter.

Field layer tall plants, ferns .

Shrub layer Bushes and young trees

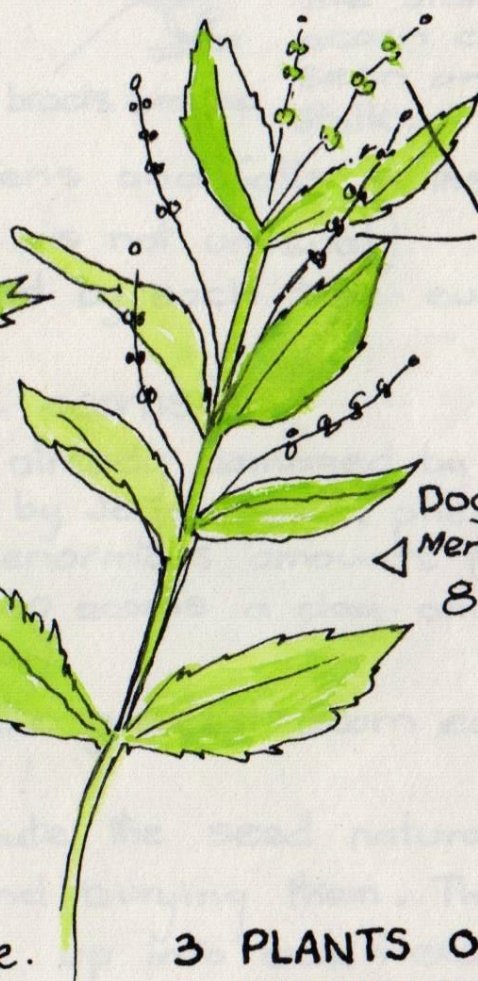
Tree layer Canopy and crown of mature trees

Note that all four layers may exist where the wood is open and sunlight reaches the woodland floor - glades, rides and woodland edges.

In studies of life in an oakwood, the 'layer' should be recorded where the particular plant or animal is found or observed.



△ Wood Anemone
Anemone nemorosa
2" to 4" high.



△ Dogs Mercury
Mercurialis perennis
8" to 10" tall

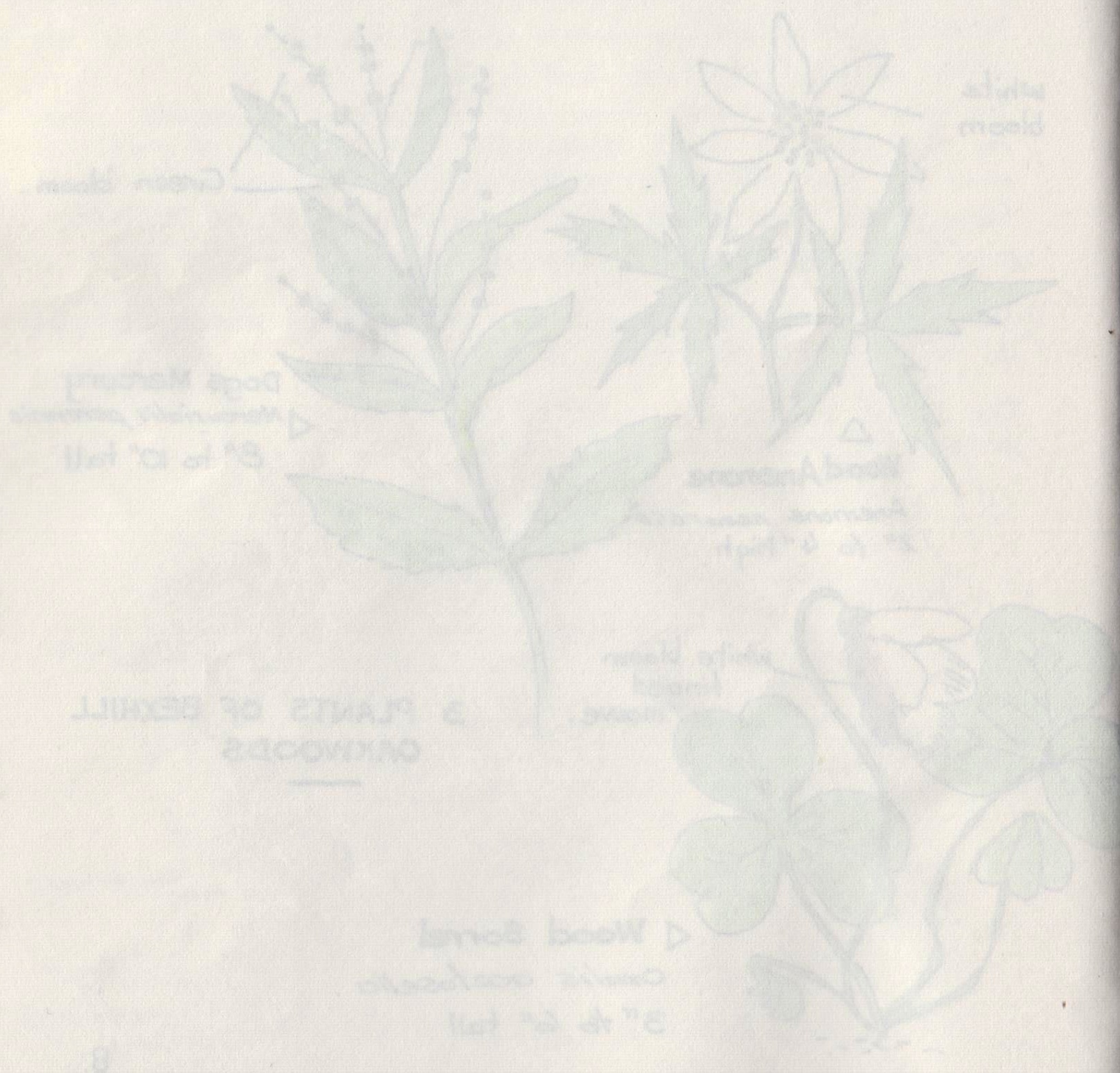


△ Wood Sorrel
Oxalis acetosella
3" to 6" tall

3 PLANTS OF BEXHILL
OAKWOODS

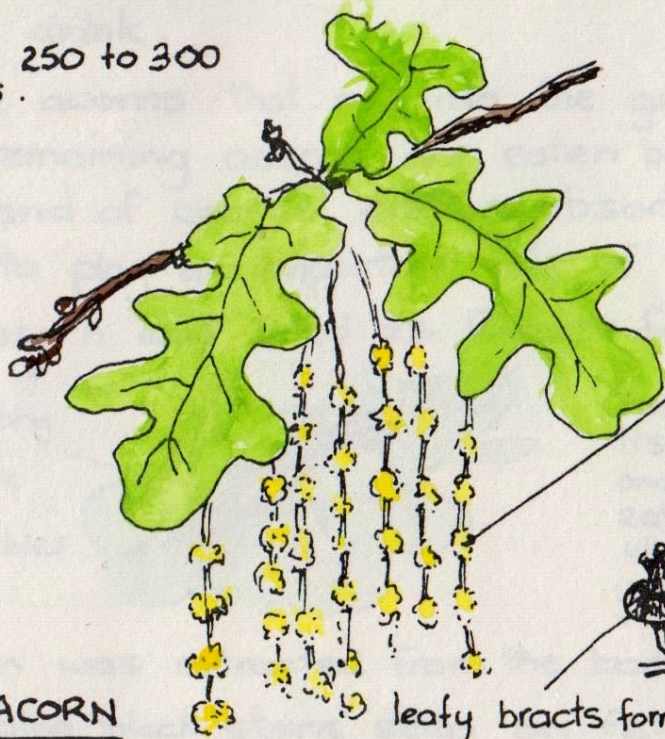
- Ground layer Small plants, grasses, leaf litter.
- Field layer Tall plants, ferns.
- Shrub layer Bushes and young trees.
- Tree layer Canopy and crown of mature trees.

Note that all four layers may exist where the stand is open and sunlight reaches the woodland floor - glades, rides and woodland edges. In studies of this in an oakwood, the 'layer' should be recorded where the particular plant or animal is found or observed.



THE OAK TREE continued.

Lives 250 to 300 years.



The fertilizing pollen is windblown.

The yellow green tassels of the male flower in May.

The inconspicuous female flower has a red stigma and the start of an acorn cup can be seen on a short stalk.

THE ACORN

leafy bracts form cup

The developing acorn ripens and falls in the Autumn. (50,000 acorns per tree is not unusual)

A bumper crop is produced by each tree every 3 or 4 years.

What happens to all these acorns?—

Perhaps a quarter are already damaged by insects. But majority are taken by Jays, rooks, pheasants and wood pigeons who eat enormous amounts (A wood pigeon will consume 140 acorns a day and its crop will hold 40 at one time)

The pigeon is probably the greatest acorn eater more than any other creature!

Jays and rooks distribute the seed naturally by flying away some distance and burying them. They are usually forgotten and may grow up into oak trees

We can assume Jays were vital for the proliferation of oakwoods - a key ecological factor.

Mammals consume many quantities of acorns - the squirrel deer, voles, (bank and shorttailed) fieldmice.

Man does not normally eat acorns because of their bitter and unpalatable taste, this is due to tannin a substance they contain. They were, however, eaten in times of famine in the middle ages.

Lives 150 to 200 years



The leafy green pollen is abundant

The yellow green pollen of the male flowers is very abundant

The inflorescence (male flower) has a red stigma and the style is short. The acorn cup can be seen on a short stalk.

THE ACORN

The developing acorn ripens and falls in the Autumn. (So one acorn per tree is not unusual). A bumper crop is produced by each tree every 2 or 3 years.

What happens to all these acorns?

Perhaps a quarter are already damaged by insects. But mostly are taken by birds, squirrels, chipmunks and other rodents and mammals. (A wood pigeon will sometimes take an acorn and its cap and hold it in its beak).

The pigeon is probably the greatest acorn eater there is in our country.

Just as birds scatter the seed naturally by flying about some distance and dropping them. They are usually forgotten and may grow up into oak trees.

We can assume that most of the production of oak woods - a very ecological factor.

Man's influence on the production of acorns - the squirrel, deer, foxes, (and other mammals) is obvious.

Man does not normally eat acorns because of their bitter and unpalatable taste, but it is known a substance in certain parts of the acorn, when in times of famine in the middle ages.

Acorns have been roasted like coffee beans and used as a drink.

Those acorns that rot into the ground fertilize it.

The remaining acorns are eaten by many other forms of life and of course are re-absorbed into the woodland soil to play an important role of nourishing the forest.

The acorn was used as fodder for pigs.

3/16" long
weevil
with its
snout
mandibles



The acorn weevil lays its eggs in the acorn and the developing grub eats the inside. When the acorn falls the grub emerges and pupates in the soil.

Tannin was extracted from the bark and used to tan hides.

The blue black stains seen on felled oak is a reaction between the iron of an axe and tannin.

(Looks like old fashioned writing ink.)

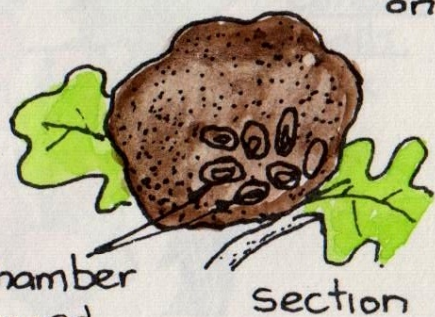
Brass screws are used when fixing into oak as steel screws are badly corroded by the acid in the timber.

OAK CALLS.

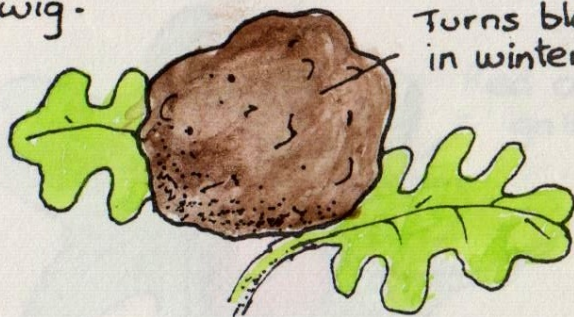
Soft spongy oak apple gall on twig.

Turns black in winter

Each grub has its own chamber
Males - winged
Females - wingless



Section



OAK APPLE GALL (1 1/4" diameter)
Biorhiza pallida

All oak galls are caused by tiny little winged insects called gall wasps of which there are 30 different species each having its own distinctive gall.

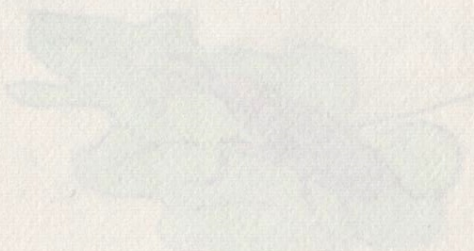
How are galls formed?

The winged female gall wasp lays eggs in a bud, leaf vein, flower or root depositing at the same time a substance same as the growing hormone of the tree. This produces abnormal growth called a gall. The eggs hatch into grubs (larvae) and grow inside the gall. Other galls are illustrated on page 11

Account has been received the Office Bureau and sent as a check.

These accounts that into the ground (Fig. 1). The narrow accounts are taken by many other forms of life and of course are reabsorbed into the wood and soil to play an important role of nourishing the forest. The account was taken as follows for pine.

The account usually takes the form of a small cup and the surrounding ground into the wood. When the account falls the ground surface and surface of the soil.



The account
usually takes
the form of a
small cup and
the surrounding
ground into the
wood.

Form was extracted from the bark and used for the test. The blue black stone seen on failed oak is a reaction between the bark of an oak and form. Looked like the formation of a blue black stone. These stones are used when found into oak as they cause the bark to be covered by the wood in the forest.

OAK GALLS

Small spring and apple gall
on oak



Small
spring and
apple gall
on oak

Small spring and apple gall (1st. chapter)

All oak galls are caused by tiny little winged insects. Called gall wasps of which there are 30 different species. Each has its own distinctive gall.

How are galls formed? The winged female gall wasp lays eggs in a bud, leaf, or other part of the tree. The eggs develop and the young wasps feed on the plant tissue. This causes abnormal growth called a gall. The gall is a protective structure for the young wasps. Other galls are illustrated on page 11.

GALL WASPS.....

Cynipidae

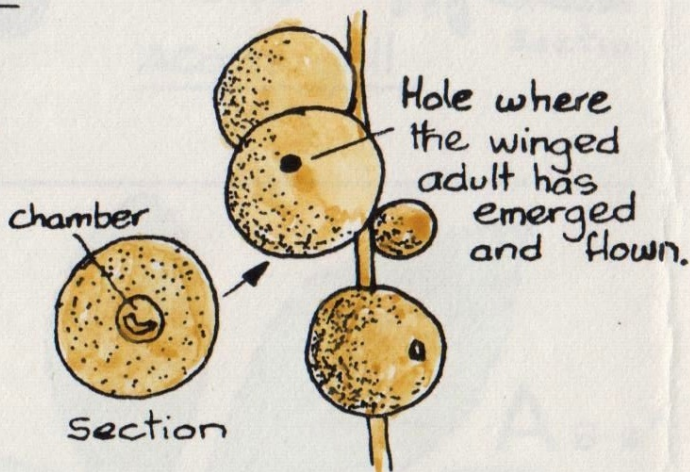
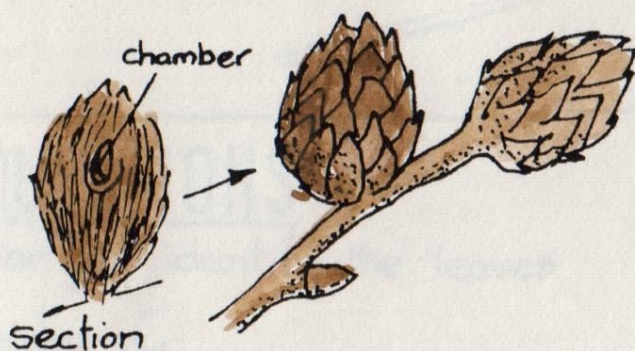


Actual size

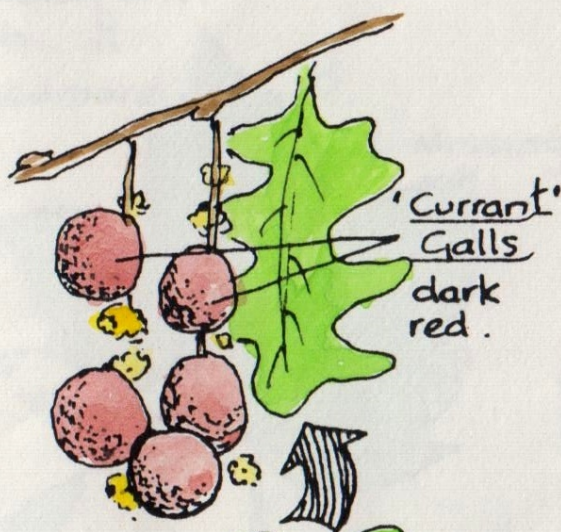


Does not resemble a wasp at all - it is very sombre coloured

A Oak 'marble' gall wasp.

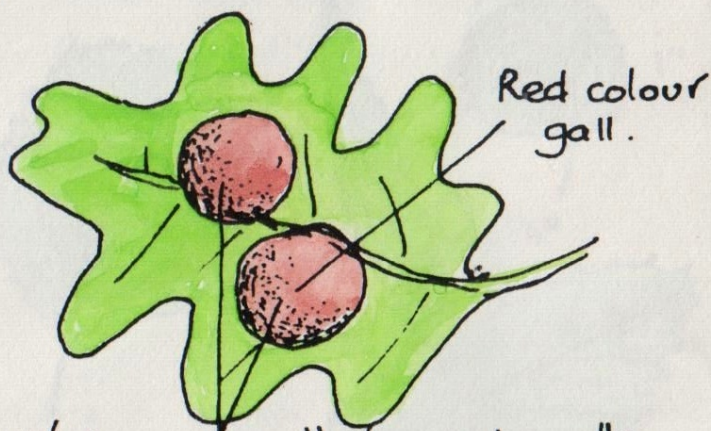


A oak 'Artichoke' gall.



A. Oak 'Marble' gall (Can reach 1" in diameter)

Introduced last century from the Middle East and the tannic acid used in dyeing and ink making.



A 'cherry' gall formed on the vein of oak leaf.

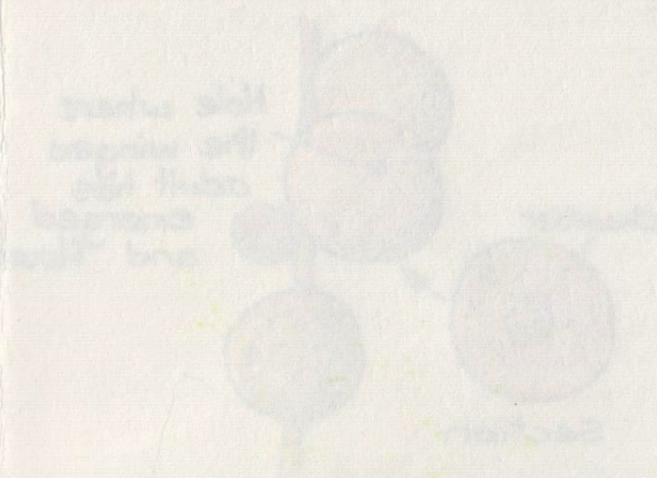
There is a similar gall called a silk button gall.

'Spangle' galls underside of oak leaf → late Summer galls fall off and wasps emerge and lay eggs on the male flower of the Oak (tassles) in the spring.
Current galls are formed on the tassles. The scientific name is *Neuroterus quercusbaecarum*.

A Oak 'mistle' gall wasp



Does not resemble
a wasp at all - it is
very slender and



the whole
the wings
with the
covered
and then



A Oak 'mistle' gall

A 'mistle' gall
(can be seen in a microscope)
Indicated last century from
the Middle East and the
Taurus and used as a
and not making



Red color
and

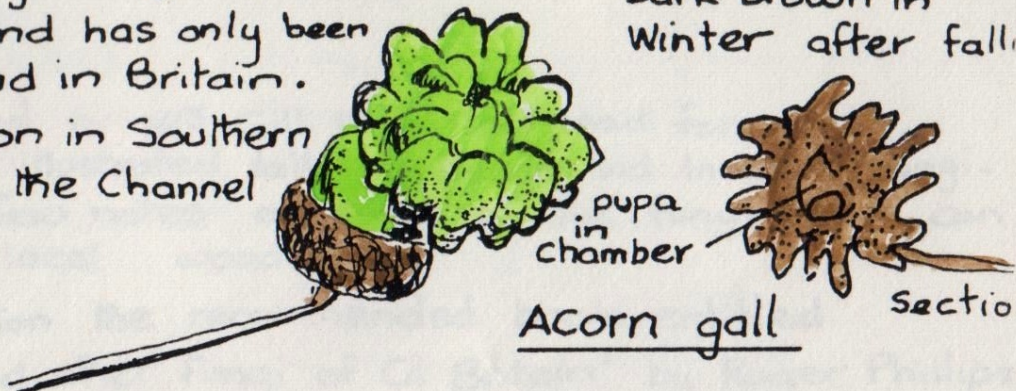


A 'mistle' gall
was a 'mistle' gall
formed on the
underside of oak
leaf - it is a small
and round and has
eggs on the inside of the oak
(larvae) in the spring
larvae galls are formed on the
leaves. The whole is covered
with a greenish substance

There is a small
and called a 'mistle'
on the leaf.

This gall is green (same colour as acorn) and has only been recently found in Britain. It is common in Southern Europe and the Channel Islands.

Dark brown in Winter after fall.

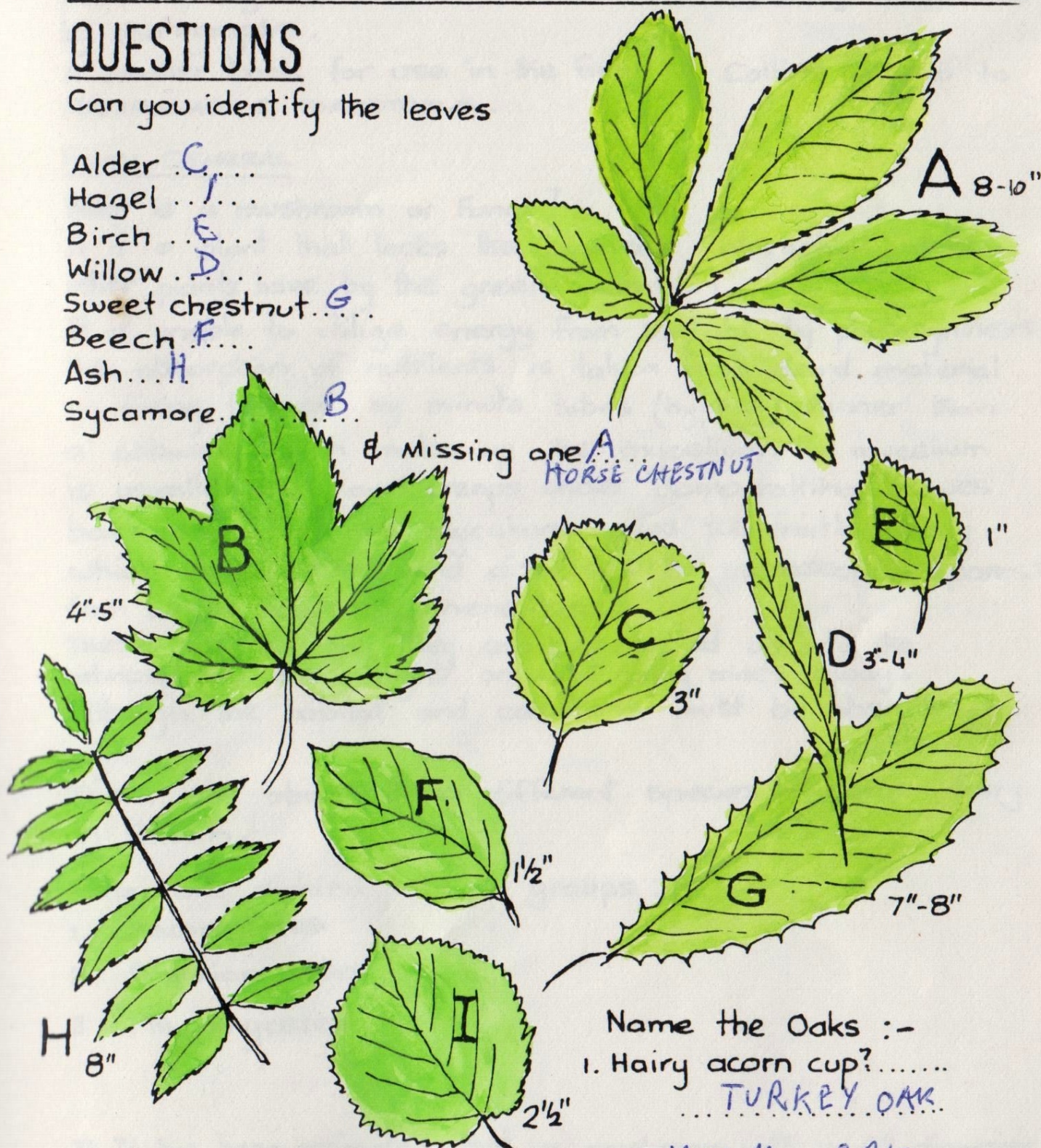


QUESTIONS

Can you identify the leaves

Alder C...
 Hazel I...
 Birch E...
 Willow D...
 Sweet chestnut G...
 Beech F...
 Ash H...
 Sycamore B...

& Missing one A HORSE CHESTNUT

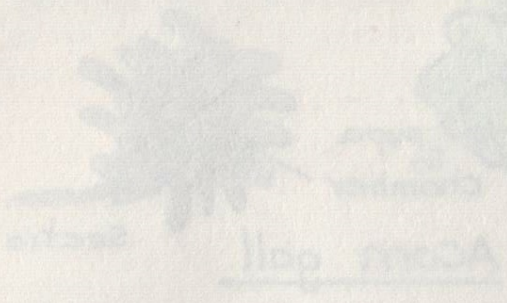


Name the Oaks :-
 1. Hairy acorn cup?
 ... TURKEY OAK ...

2. Large evergreen oak in Bexhill? ... HOLM OAK ...

Dark brown in
winter after fall

This gall is green (brown when
it dries) and has only one
acornlet found in it.
It is common in California
Europe and the Channel
Islands



Acorn gall

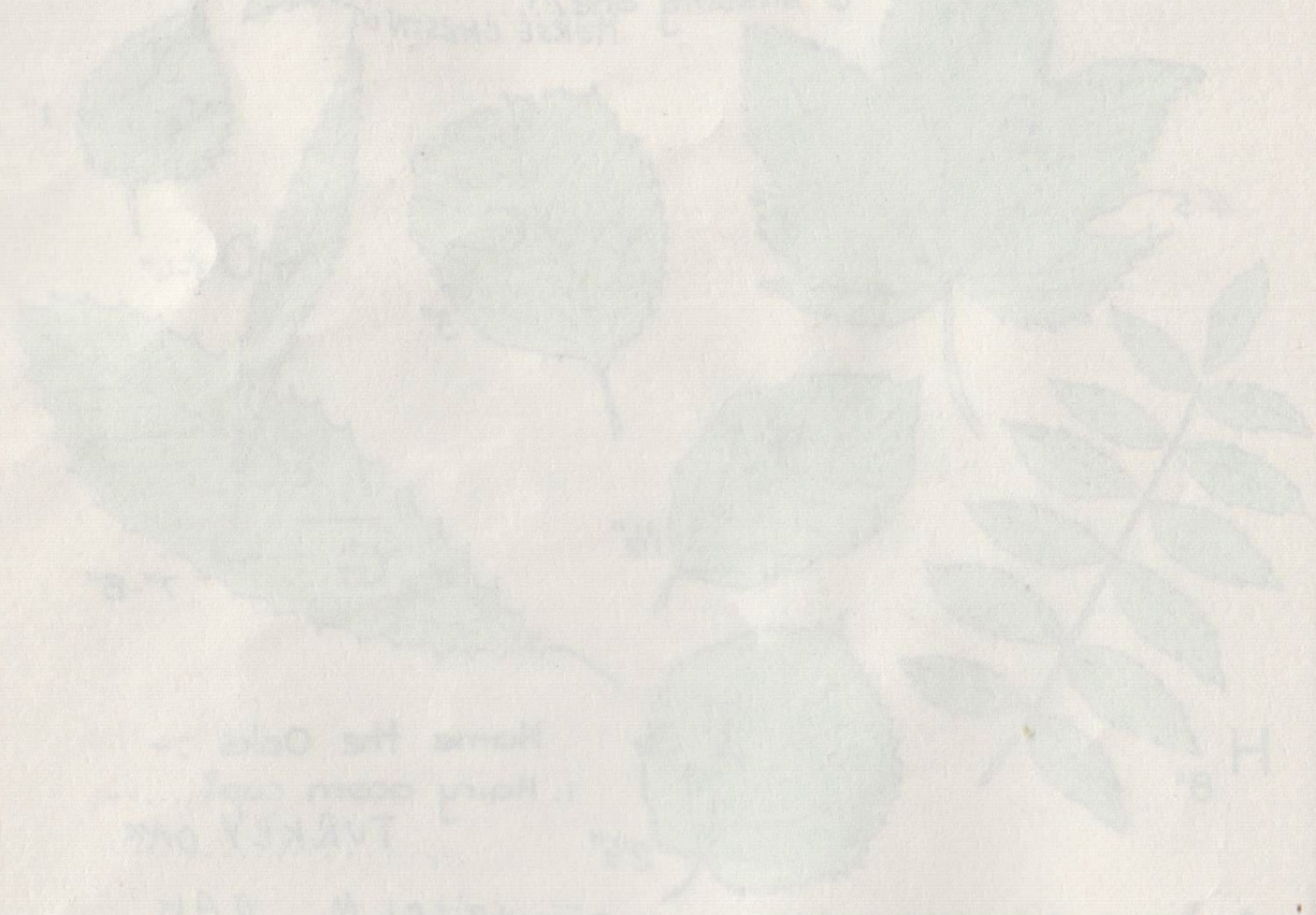
QUESTIONS

Can you identify the leaves



- Alder C
- Hazel J
- Birch E
- Willow D
- Swamp chestnut G
- Beech F
- Ash H
- Sycamore

A. Harding and
H. C. Crosby



Have the Oaks
hard down oak
Turkey oak

Large evergreen oak green in winter

FUNGI

We are indebted to Mrs Cill Winn-Ruffhead for giving a fascinating illustrated talk on Edible and inedible Fungi. Here are a few notes of some of the fungi which can be found in local woodlands.

For identification the recommended book entitled 'MUSHROOMS and other fungi of Ct Britain' by Roger Phillips published by Pan Books is excellent - Superbly illustrated by photographs.

A smaller book for use in the field is Collins guide to MUSHROOMS & TOADSTOOLS.

FUNGI GENERAL

What is a mushroom or Fungi?

It is a plant that lacks the pigment Chlorophyll which other plants have by the green coloration.

It is unable to utilize energy from sunlight by photosynthesis. The absorption of nutrients is taken from dead material or living tissues by minute tubes (hyphae) thinner than a cobweb which make up the mycelium. The mycelium is usually white and creeps under damp rotting leaves, bark etc. From the mycelium grows the fruiting body which manufactures and disperses the microscopic spores* from which new specimens grow.

These are so tiny they can be carried up into the atmosphere and alight on land many miles away - although the habitat and conditions must be absolutely right.

There are about 3000 different species of 'larger' fungi in Britain.

Fungi are divided into 3 groups:-

1. Ascomycetes
2. Basidiomycetes.
3. Phycomycetes.

* It has been estimated that a mushroom with a 4" diameter cap releases 16,000 million spores.

FUNGI

We are indebted to Mr. C. H. W. Curtis for giving a fascinating illustrated talk on Edible and inedible fungi. Here are a few notes of some of the fungi which can be found in local woodlands.

For identification the recommended book entitled 'Mushrooms and other fungi of the British Isles' by Roger Phillips published by P. N. Books is excellent - superbly illustrated by photographs.

A smaller book for use in the field is Collins' guide to mushrooms & truffles.

Fungi: General

Fungi is a kingdom in fungi. It is a plant that lacks the pigment chlorophyll which other plants have by the green colouration. It is unable to utilise energy from sunlight by photosynthesis. The absorption of nutrients is taken from dead material or living tissues by minute tubes (hyphae) which form a network which makes up the mycelium. The mycelium is usually white and grows under damp rotting logs, bark etc. From the mycelium grows the fruiting body which manufactures and disperses the reproductive spores from which new specimens grow.

These are so tiny that they can be carried up into the atmosphere and drift on land many miles away. Although the habitat and conditions must be absolutely right.

There are about 5000 different species of fungi in Britain.

- Fungi are divided into 3 groups:-
1. Ascomycetes
 2. Basidiomycetes
 3. Zygomycetes

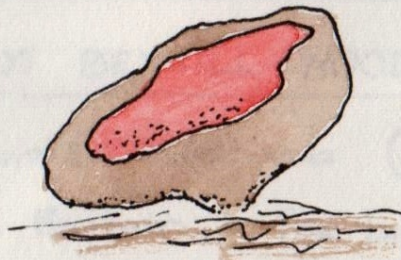
* It has been estimated that a mushroom with a 4" diameter cap releases 10,000 million spores.

Ascomycetes

Group 1. includes Truffles, (grows underground) Morels, cup fungi, Cramp balls (King Alfred's cakes) Moulds (on leather and colouring Stilton and gorgonzola cheese) Mildews, (on oak) Yeast, Penicillin.



Morel.



cup fungi.



Truffel.

Very lucky should these be found locally - rare.

Basidiomycetes

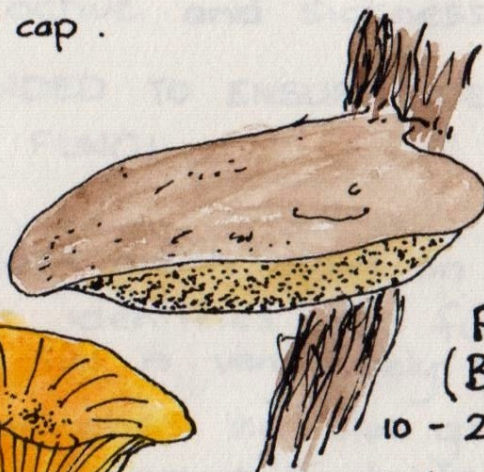
This is the major Group and most diverse includes mushrooms, toadstools, puffballs, bracket fungi



Scarlet cap.

Cap.

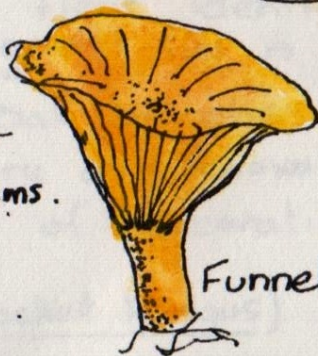
Fly Agaric 10-15cms.
(Amanita)



Many little insects live in these fungi - mainly Beetles.

Polypore
(Bracket fungus)
10 - 20cms across.

Bracket



Funnel

Spores distributed by vibration of falling raindrops

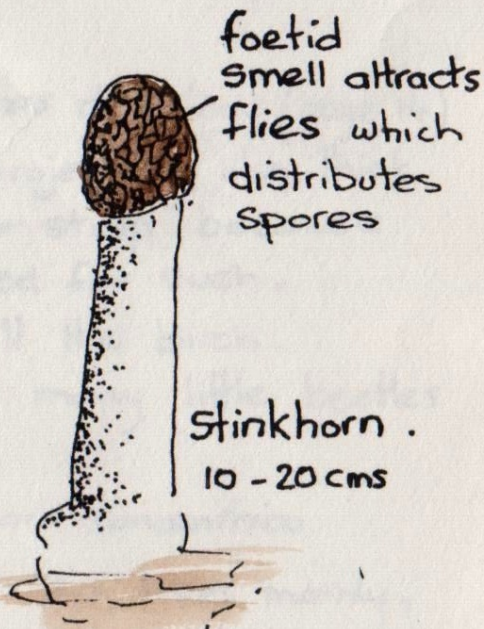
dry brown skin when mature



Puff ball



club 5cms tall
(up to 2")



foetid smell attracts flies which distributes spores

Stinkhorn.
10 - 20 cms

Ascomycetes
 Group 1. Includes: Truffles (grows underground) Boletes
 cup fungi, Camp balls (and other colors) Moulds (on
 paper and coloured stiller and gongololo cheese)
 Asbestos (on oak) yeast, Penicillin.



Morel.



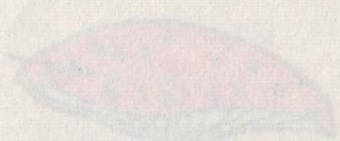
Cup fungi.



Truffle.

very
 locally abundant
 these are found
 locally - rare

Basidiomycetes
 This is the major Group and most diverse includes
 mushrooms, toadstools, puffballs, bracket fungi

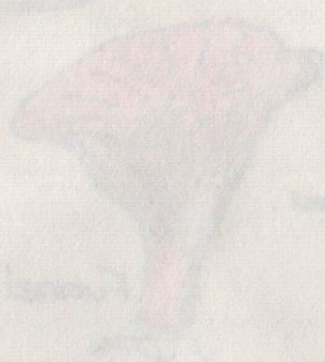


Bracket cap



Cap.

ly Agaric is rare
 (Amanita)



Funnel



Bracket

very little
 locally the
 in grass
 fungi - mostly
 Boletes

Polypores
 (Bracket fungi)
 in - 20 cm across

Species
 distributed by
 variation of
 colour
 dry brown
 when wet



Puff ball



Club mosses
 (Lycopodium)



Stinkhorn
 in - 20 cm

foetid
 stink
 which
 attracts
 spores

Phycomycetes

This 3rd group includes the white and grey moulds which grow on bread, jam and other foods, 'white fungus' on aquarium fish, 'athlete's foot' on humans.

SOME FUNGI OF BEXHILL WOODLANDS.

Fly Agaric *amanita muscaria* (see page 14.) Autumn.

24 species in Britain - The bright scarlet caps with white chips is very common to Bexhill. It is poisonous although not fatal. The name comes from the practice of breaking the cap into milk (used in medieval times) to stupefy flies. It has strong hallucinatory and intoxicating properties if swallowed affects nervous system and the subjects state of mind. Following a death like sleep, the patient becomes highly active and sickness is induced.

STUDENTS ARE RECOMMENDED TO ENSURE IDENTIFICATION BEFORE CONSUMING ANY FUNGI.

Green Woodcup. A dark green stain on wood found on the woodland floor identifies this fungi. however, the tiny green cup is very rarely seen.

Usually found on oak branches the blue green stain was used in Marquetry and known as 'Tunbridge Ware' a traditional method of decoration.

Birch Polypore (Bracket Fungus) *Polyporus betulinus* (page 14)

Grows on the bark of birch trees projecting like thick plates another name for them is Razor strop because being so hard and 'leathery' was used for such.

They are long lived and eventually kill the birch.

The tube pores under the fungi contain many little beetles on the older specimens.

Cramp balls or king Alfreds cakes *Daldinia concentrica*

Black roundish knobs on the bark of Ash trees mainly,

This sub group includes the white and grey moulds which grow on bread, jam and other foods, white fungus, an aquarium fish, 'caterpillars' and on humans.

SOME FUNGI OF BECHTOLD WOODLANDS

Physcomphala (see page 10) - This species is common in Britain - The bright scarlet caps with white tips are very common to Bechtold. It is a poisonous fungus not fatal. The name comes from the practice of pouring the cap into milk (used in traditional times) to stupefy flies. It has strong hallucinatory and intoxicating properties. It swells and affects nervous system and the subjects state of mind. Following a dose, the sleep, the patient becomes highly active and sickness is induced. Students are recommended to ensure identification before consuming any fungi.

Green Woodcap - A dark green stain on wood found on the woodland floor identifies this fungus. However, the tiny green cap is very rarely seen. Usually found on oak branches the blue green stain was used in traditional and modern 'mushrooms' as a traditional method of decoration.

Black Fungus (Black Fungus) - This fungus is common (see page 10) grows on the bark of black trees appearing like black plates which serve for them as food. It is common being so hard and 'leathery' and used for such. They are very hard and eventually kill the bark. The tube parts under the fungi contain many little beetles on the other specimens.

Camp host of King Alfred's castle - This is a common Black roundish knobs on the bark of ash trees mainly.

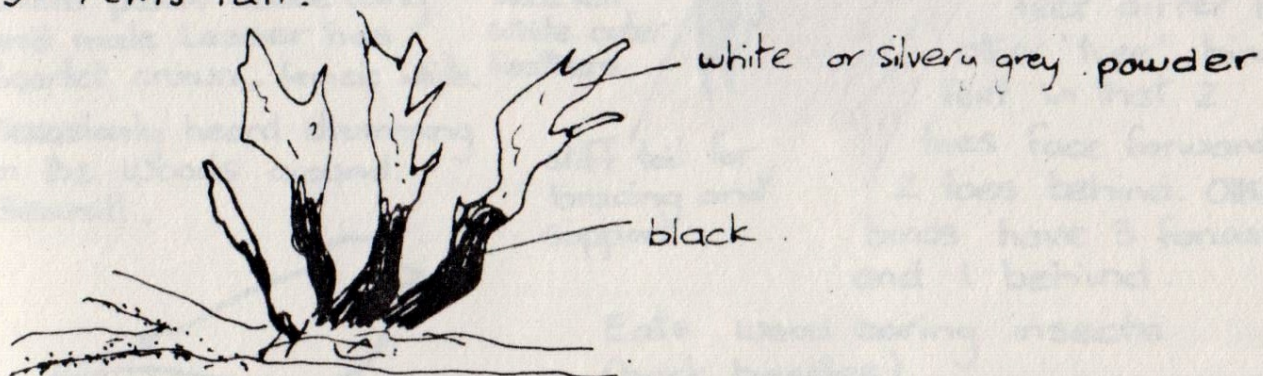
and of Beech. When cut open annual concentric rings are seen.

Kept in the pocket are said to cure cramp and rheumatism.

The fungi is dry and hard but is said to contain its own storage of water in dry weather

Candle snuff or Stags horn. *Xylaria hypoxylon*

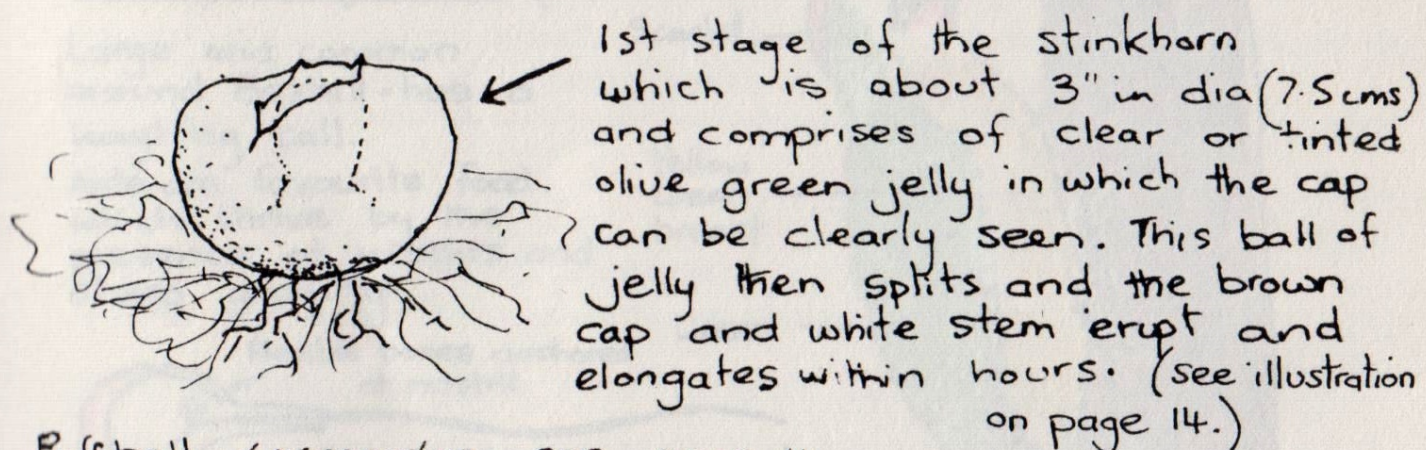
5-7cms tall.



grows on dead wood - tree stumps etc.

Stinkhorn *Phallus impudicus* (page 14)

Usually smelt before seeing. The 'putrid' odour given off after emerging from the young stage shown below, attracts flies of all descriptions to feed on the slimy brown cap. The flies carry off the spores unwittingly. This fungi grows in rich woodland soil.



Puffball *Lycoperdon* see page 14.

Grows in groups on timber on the woodland floor.

When advanced the papery brown skin splits and awaits vibration or a knock to puff out the spores from the opening. A rain drop does this!

kind of flesh. When cut open annual concentric rings are seen.
 kept in the pocket and used to cure rheumatism.
 The tree is slightly hard but is said to contain its own storage of water in dry weather.

Candle shrub or Stage horn *Hydnora repens*

2-3 cm tall.



Grows on dead wood - tree stumps etc.

Stinkhorn *Phallus impudicus* (page 14)

Usually small before opening. The entire odor given off after emerging from the young stage shows below, others first of all decomposition to food on the skin brown cap. The first cap off the spores immediately. This fungus grows in rich woodland soil.

1st stage of the Stinkhorn which is about 2-3 cm (1-2 in) and composed of clear or white olive green jelly in which the cap can be clearly seen. The ball of jelly then splits and the brown cap and white stem erupt and stand out with hairs. (see illustration on page 14)



Pink Ball *Phallus impudicus* are seen in

Grows in groups on timber on the woodland floor. When advanced the cap splits and emits vibration or a knock to pull out the spores from the opening. A rain does does it!

WOODLAND BIRDS

Great spotted Woodpecker ▷

Much larger than the Lesser spotted which is sparrow size - similar colouring but lacks the white patch above wing and male Lesser has scarlet crown - female white.

Occasionally heard drumming in the woods around Bexhill.



House sparrow scale

Robust skull structure and muscles in the upper jaw cushion the shock and vibration of blows. Drumming on dead branches for a mate and territory. The Great spotted woodpecker is the most frequent of the two species.

Male scarlet nape

white patch

Scarlet
black tail
white outer
feathers

stiff tail for
bracing and
support

black crown.

white

Note:

Woodpeckers feet differ from other 'tree' birds feet in that 2 toes face forward and 2 toes behind. Other birds have 3 forward and 1 behind.

Eats wood boring insects (bark beetles)

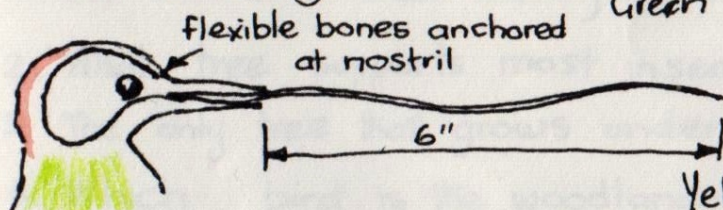
Drumming :-

Great - 8 to 10 blows per sec.
Lesser - 14 to 15 blows " "

Green Woodpecker. (Yaffle)

Large and common around Bexhill - has a laughing call.

Ants are favourite food. which thrive by the presence of rabbits and sheep grazing.



Long tongue linked to elastic tissue and flexible bones which extend well into head. Tongue is sticky and collects insects in crevices and holes.

Scarlet

Yellow
Green
breast

Green

Yellow
rump

Braced tail
feathers

Great spotted Woodpecker

which larger than the
lesser spotted which
is sparrow size similar
colouring but lacks the
white patch above wing
and male lesser has
scarlet crown, female white
occasionally heard drumming
in the woods around
Buckhill.

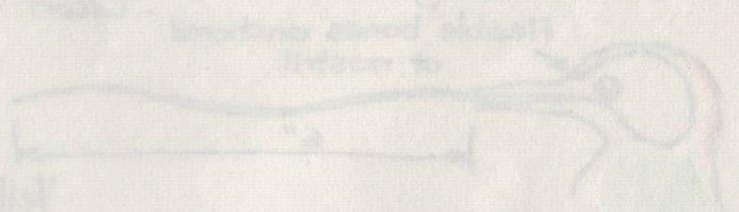


House sparrow

about skull structure and
muscles in the upper jaw contain the stock and vibration
of bones. Drumming in head muscles for a while and
The Great spotted woodpecker is the most frequent of the
two species.

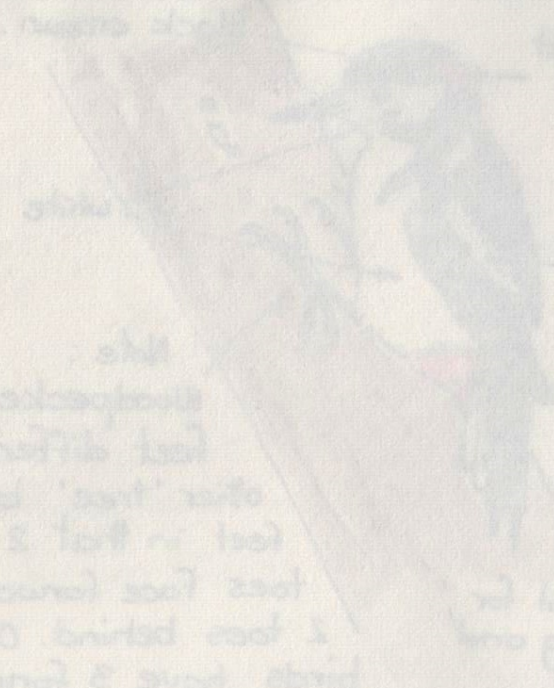
Green Woodpecker (Little)

Large and common
around Buckhill - has a
laughing call
birds are voracious feed
which thrive on the
presence of rabbits and
sheep grazing.



long tongue fitted to elastic
tissue and little bones which
extend well into head.
Insects in cracks and holes
Insects in cracks and holes.

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Treecreeper Quite common in Bexhill

Little mouselike tree birds 'running' up tree trunks probing the bark for insects.

Suffers in cold winters and is able to fluff out downy feathers on lower back to reduce body heat loss.

Can hollow out by excavation the soft bark of Wellingtonia trees.

Rarely flies very far away.

Builds tiny nest behind loose bark.

light mottled brown.

light brown stiff tail

white breast and under parts



Nuthatch common in Bexhill

A sparrow sized bird, adapted for movement on trunks and branches.

Can come down tree trunks head first or run upside down under a branch at any angle.

Nests in holes in trees and will reduce the entrance with mud lining to keep out larger birds.

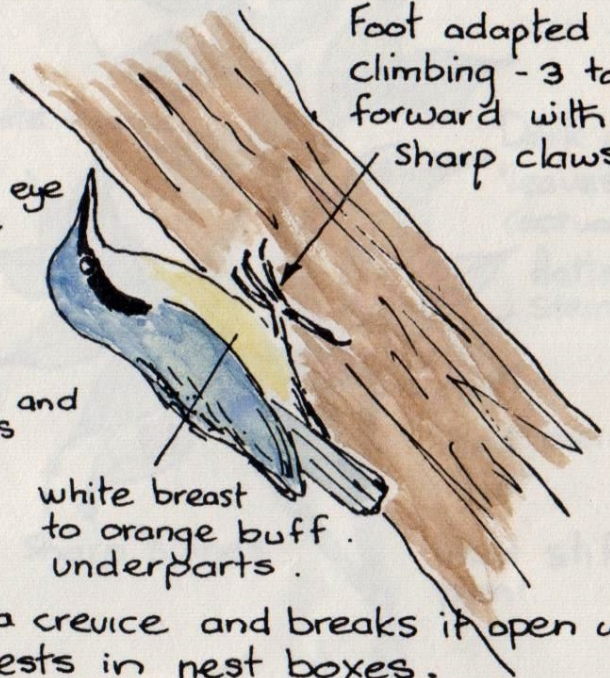
Stores nuts - jams a nut in a crevice and breaks it open with its strong bill. Quite often nests in nest boxes.

Black eye stripe

blue grey back and wings

white breast to orange buff underparts.

Foot adapted for climbing - 3 toes forward with long sharp claws.



QUESTIONS

1. What do think these plants are called? ...

You can find them mainly in Woods

Green or Red capsules

Actual size .



2. What tree supports most insect life

3. The only tree that grows under the shade of a beech

4. Which bird is the woodland bird A or B.

(If I give the names of them you would know)



5. Which butterfly is the odd one out :ie not seen in Woodland
White Admiral - Gatekeeper - Purple hairstreak - Common Blue -
Brimstone.

Tree Creeper

Quite common in Beakall
 Little mouse-like tree
 birds running up
 tree trunks eating the
 bark for insects.
 Suffers in cold winters and
 is able to fluff out downy
 feathers on lower back
 to reduce body heat loss.
 Can hollow out by
 excavations the soft bark of
 Mediterranean trees.
 Rarely flies very far away.
 Builds tiny nest behind loose bark.

white
 breast
 and
 underparts

light
 mottled
 brown
 back
 and
 wings



nest adopted for
 climbing - it has
 forward with long
 sharp claws

Mistletoe

common in Beakall
 A sparrow sized bird
 adapted for hovering
 on thick and branches black eye
 can come down with
 birds head first or
 feet upside down
 under a branch
 at any angle
 nests in holes in
 trees and will reduce the
 entrance with mud lining
 to keep out larger birds.
 Since this - it is a scarce and breeds in small
 groups. Quite often nests in nest boxes.

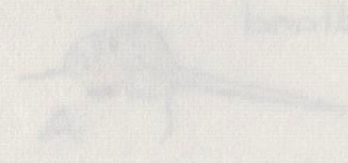
blue
 grey
 back and
 wings

white breast
 to connect with
 underparts

QUESTIONS



1. What do these plants are called?
 You can find them mainly in woods
2. What does supports most insect life
3. The only tree that grows under the shade of a beech

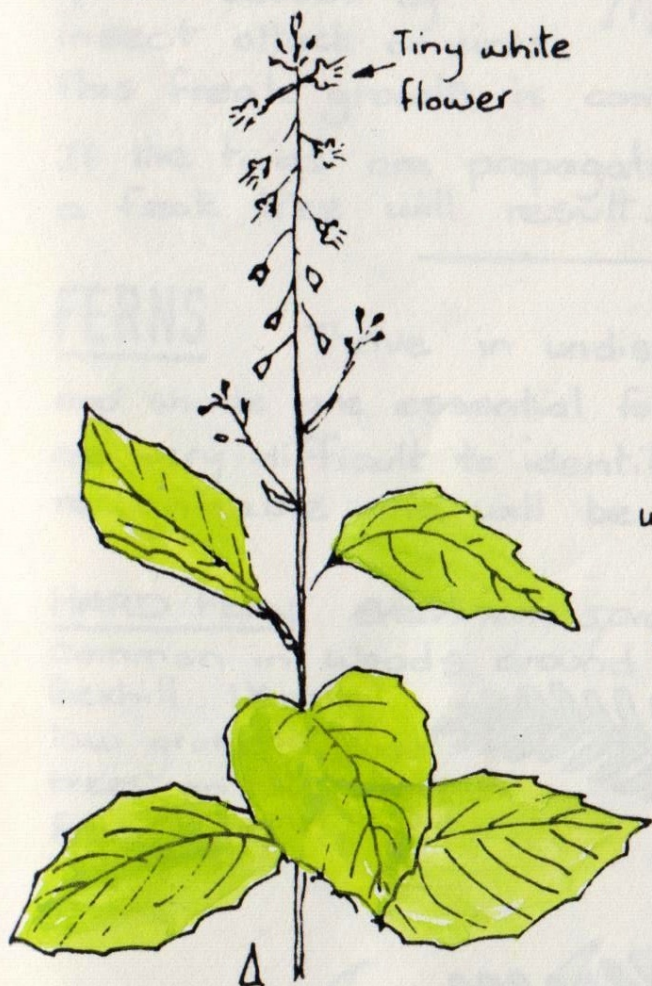
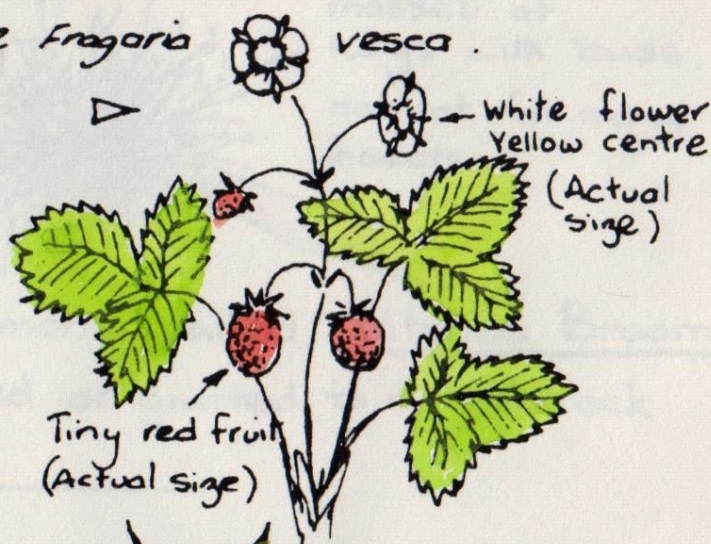


4. Which bird is the woodpecker
 bird A or B.
 (If I give the names of the
 you would know)
5. Which butterfly is the odd one out in our garden
 white butterfly - black butterfly - brown butterfly -
 blue butterfly

WOODLAND PLANTS

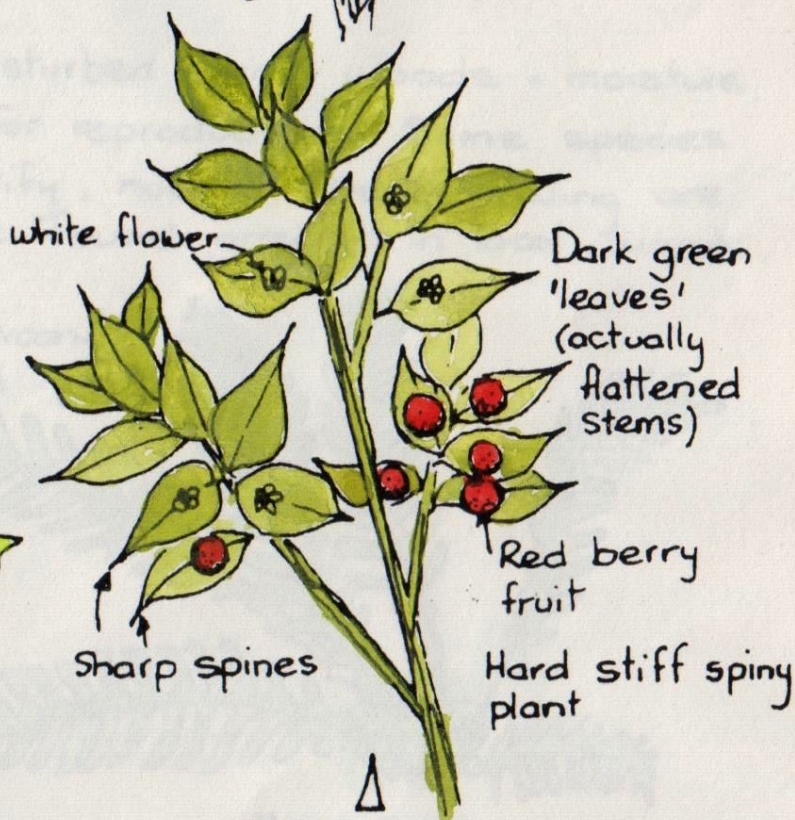
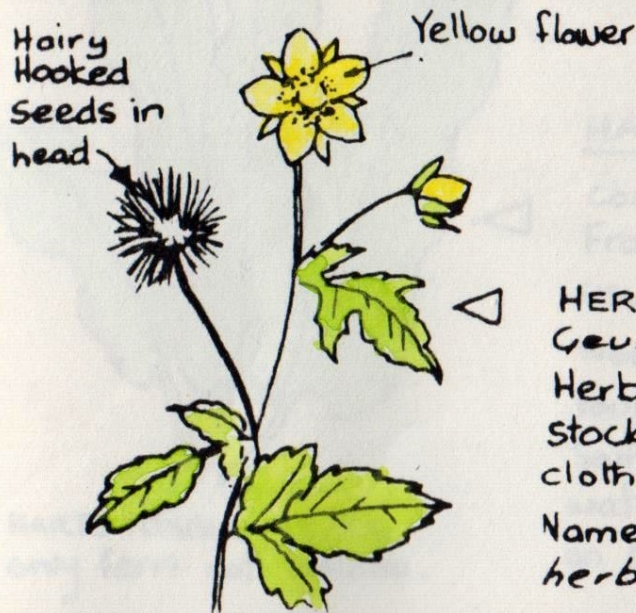
WILD STRAWBERRY *Rosaceae* *Fragaria vesca*.

Very common low growing
flowers in April/May



ENCHANTERS NIGHTSHADE

Circaea lutetiana
grows in shade - 18" tall
common.



BUTCHERS BROOM 18" tall.
Ruscus aculeatus - Bushes
locally common to Woods.
grows in shade under hedges
also. Flowers Feb/Apr.
Plants were used for scrubbing
butchers chopping blocks.

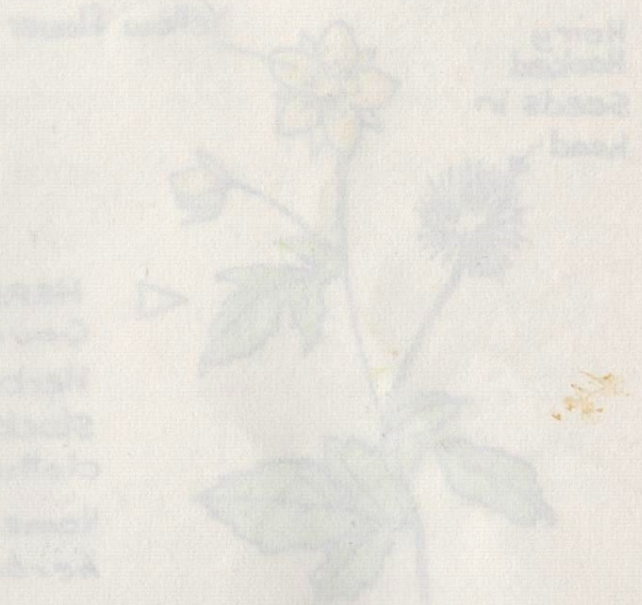
HERB BENNET or WOOD AVENS.
Geum urbanum. 20-24" tall.
Herb of middle ages for flavouring
stock. Brown seed hooks in fur and
clothing.
Name origin - a blessed herb -
herba benedicta. Flowers July/Aug.

WOODLAND PLANTS

WILD STRAWBERRY *Fragaria virginiana*
Very common low growing
flowers in April/May



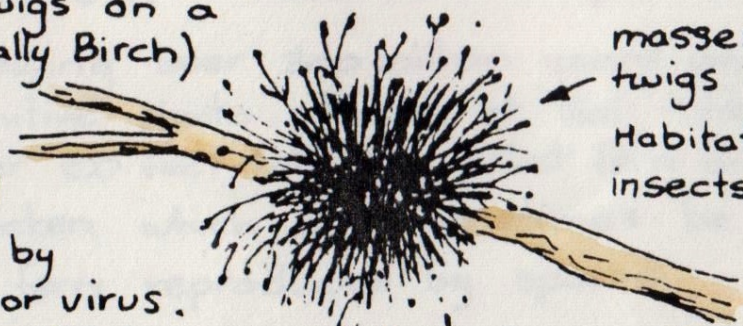
ENCHANTED NIGHTSHADE
Circoea heliophila
grows in shade - 18" tall
common



BUTCHER'S BROOM *Eragrostis ciliaris*
locally common in
woods. grows in shade under trees
also flowers for 4/5
leaves were used for wrapping
butcher's chopping blocks.

HARD BURNET - WOOD NIENT
Cornus canadensis - 20-24" tall
leaf of middle age for flavoured
stock. leaves used in tea in the
country.
leaves bitter - a blessed herb -
rich in vitamin C. flowers 4/5

A mass of twigs on a branch (Especially Birch) that is seen Sometimes, is an abnormal growth caused by insect attack or virus.



masses of twigs with buds.
Habitat for many insects.

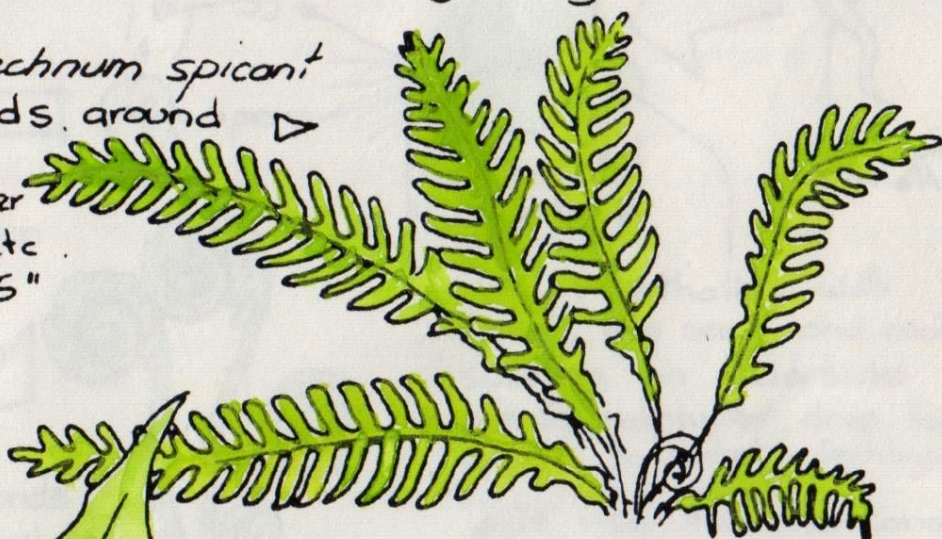
This freak growth is commonly called Witches Broom.

If the twigs are propagated or grafted to a rootstock a freak tree will result.

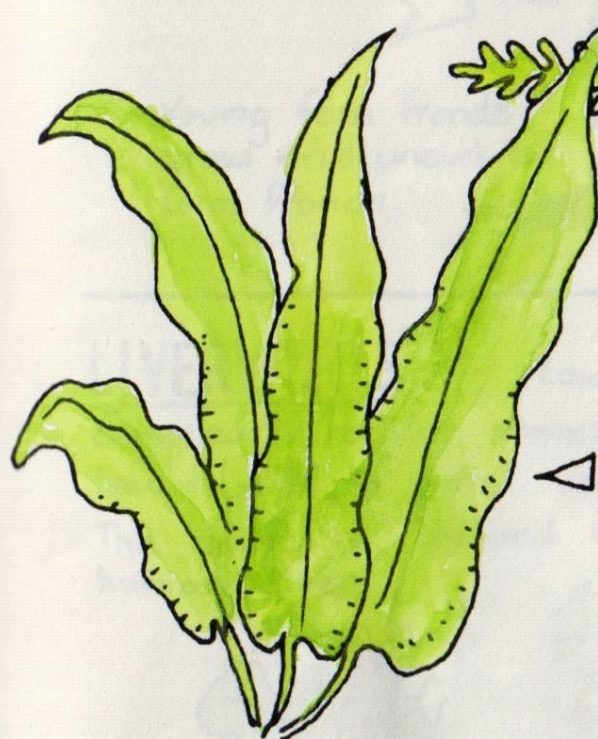
FERNS

Thrive in undisturbed damp woods - moisture and shade are essential for reproduction. Some species are very difficult to identify, however the following are recognisable and will be found growing in local woods.

HARD FERN *Blechnum spicant*
common in woods around Bexhill. Usually low growing under trees on banks etc.
Fronds 4" to 15"



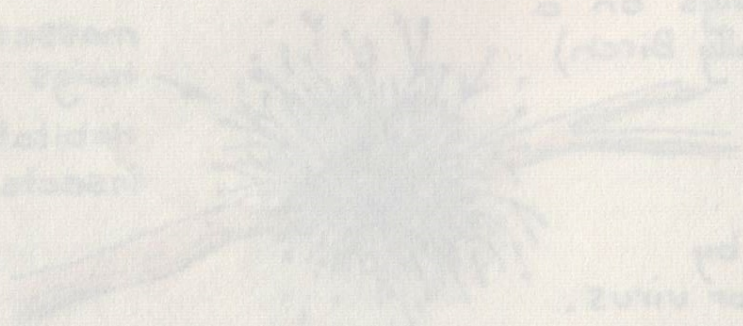
HARD FERN



HARTS TONGUE is the only fern not toothed.

HARTS TONGUE *Phyllitis scolopendrium*
common.
Fronds 4" to 24" long growing usually in steep damp sides to woodland streams or water falls. Found growing in damp walls Sometimes - where gutters or rain water pipes are leaking usually on stonework to churches.

masses of
light blue buds
which are very
faint.



A mass of buds on a
brown (spindle) branch

that is seen
sometimes

is an abnormal

growth caused by

insect attack or virus.

This fresh growth is commonly called Witch's Branch

If the buds are propagated or grafted to a stock
a few trees will result.

FERNS

These are widespread damp woods - ferns
and shade are essential for reproduction. Some species
are very difficult to identify, however the following are
recognizable and will be found growing in local woods.



Hard Fern

Hard Fern *Adiantum species*

Common in woods around

localities.

It is growing under

trees on rocky etc.

fronds 4" to 12"



Hard Fern *Adiantum species*

Common

fronds 4" to 12", long growing

usually in steep damp sides in

woodland stream or water falls

found growing in damp walls

sometimes - when drier or less

water pipes are leaking usually

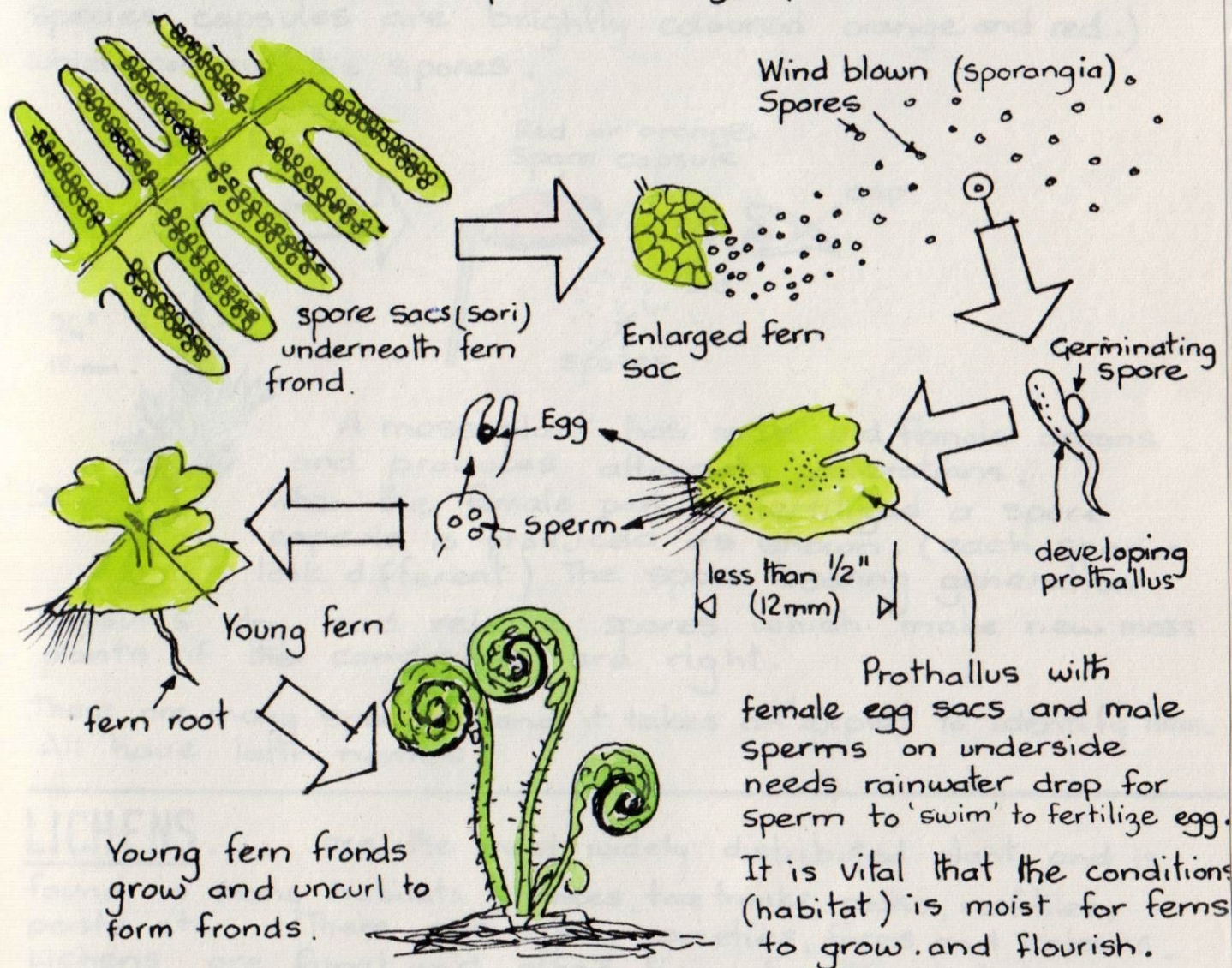
on stone work to claspings.

Hard Fern

very hard to find

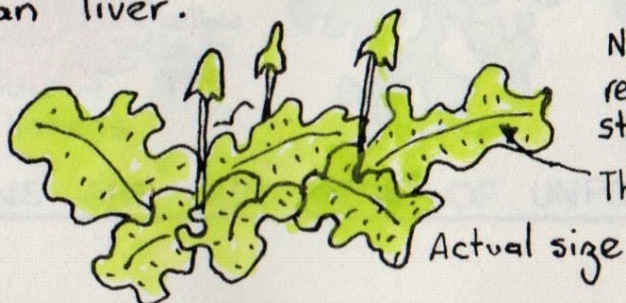
FERNS continued... More than 50 species in Britain

Ferns were growing over 300 million years ago and are one of the primitive plants although at that time some fern trees stood over 100 feet tall. Our tallest fern and the most prolific is Bracken which can sometimes be just over 5 feet tall. The fern reproduces by spores →



LIVERWORTS ... Low flat green 'fleshy' plants growing on damp earth, rocks, stones - sides of streams, waterfalls and tree trunks in moist conditions.

The name is derived from the vague similarity to the shape of human liver.

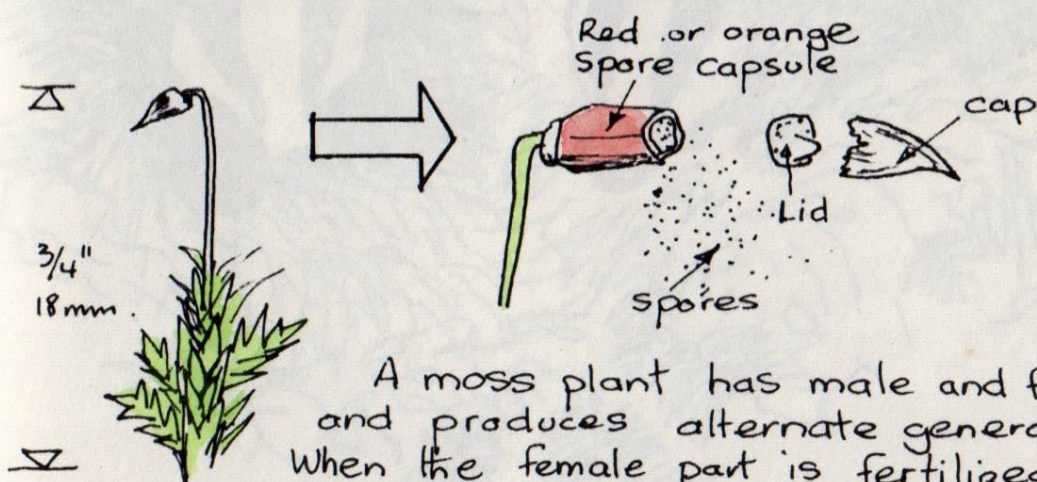


No English names. Generally spore reproduction - females on capped stalks - males on thalli.

Thalli is the name for 'fleshy' leaves

MOSSES ... have no true leaves, stems or roots.

Moss 'leaves' are thin and flat and are arranged spirally around weak flimsy stems. These stems do not conduct food as in normal plants. Mosses absorb water over their entire surface. Like liverworts they need moist conditions to survive and wintertime is the ideal period and in early spring stalked capsules are produced (in some woodland species capsules are brightly coloured orange and red.) which contain the spores.



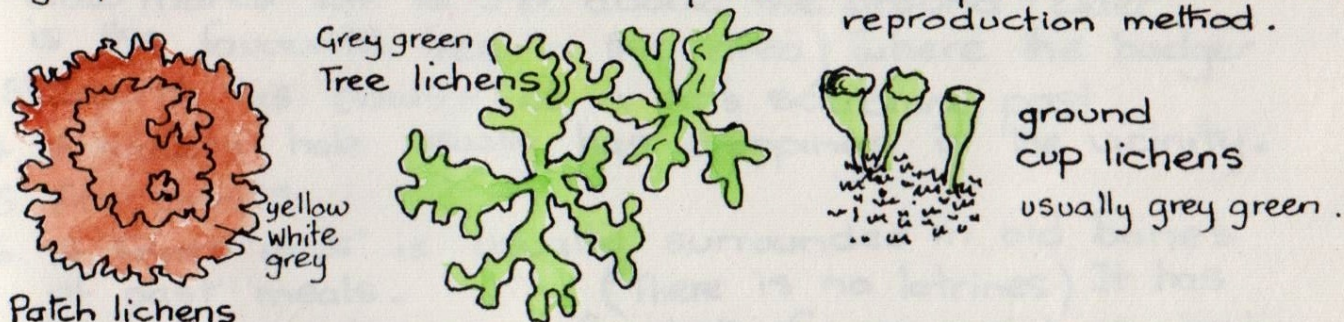
A moss plant has male and female organs and produces alternate generations. When the female part is fertilized a spore capsule is produced as shown. (each species look different) The spore bearing generation

capsules dry and release spores which make new moss plants if the conditions are right.

There are many species and it takes an expert to identify them. All have latin names.

LICHENS ... are the most widely distributed plant and is found in many habitats - fences, tree trunks, paths, roof tiles, posts etc. There are many varieties, forms and colours. Lichens are fungi and algae living together but do not require damp conditions. Experts are needed for identification as all also have latin names.

Fungal pieces break off to make new plants and spores is a second reproduction method.



LICHENS ARE INDICATORS OF UNPOLLUTED AIR

BADGERS



We are very fortunate to have a large population of these animals in Sussex and their setts are to be found in the surrounding woodland.

Identification of a badgers home as against a rabbits hole or foxes den:- see illustration over.

1. Two or three shallow pits in the soil behind the entrances are the badgers latrines.
2. Small heaps of used bedding bracken, leaves, grass may be found close by.
3. Examine the trunks of nearby trees for scratches - claw marks 2ft to 3ft above the ground (Elder is the favourite tree in this area) where the badger sharpens his claws - like a cat's scratching post.
4. A rabbits hole usually has droppings in the vicinity.
5. Footprints.
6. A Foxes 'earth' is usually surrounded in old bones of past meals. (There is no latrines) It has been known however for both foxes and badgers to live together using different entrances and tunnels.

Setts usually have a cover of undergrowth and the mounds of excavated soil are usually a giveaway.

Diet. Earthworms, snails, grubs in bee and wasps nests. Fruit especially blackberry, mice, dead birds, beetles

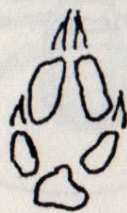
Average lifespan - 3 years but can live to 10.



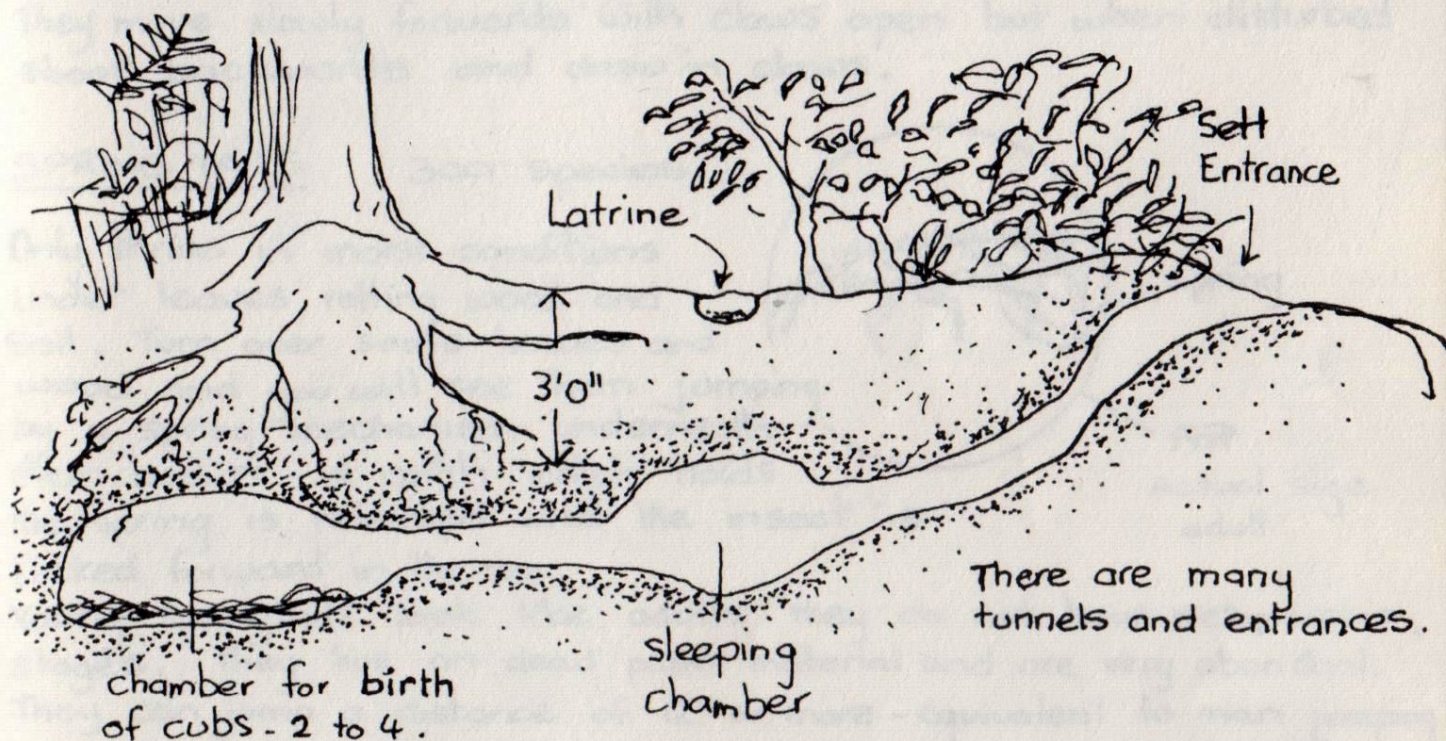
left front
Badger. 5 toes



right front
Dog. 4 toes.



Narrow foot
right front.
Fox (Tracks in straight line.)



Badgers are nocturnal and not usually seen before midnight!

QUESTIONS

1. A ball of leaves and twigs in the fork of an oak tree?

SQUIRREL'S DRY

2.



The foot of a
Woodland bird?

WOODPECKER

3.



Insect?
makes white 'squiggles'
in leaves.

LEAF MINER MOTH

4. Dutch Elm disease
caused by a bark
Beetle... true or false?

...TRUE

5. A shield bug feeds
on tree sap?

...YES...

Creatures of leaf litter

- Rake over leaves and see the following:-

FALSE SCORPIONS

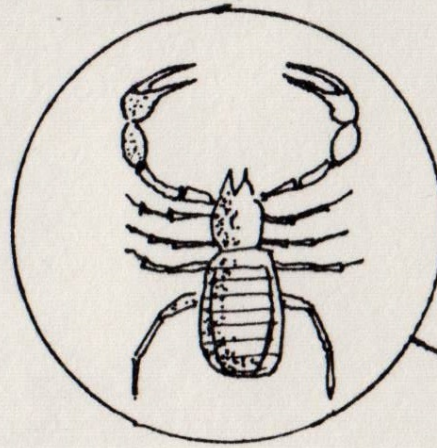
These are very tiny creatures of the spider family (note the 8 legs)

Lives on mites and other tiny creatures of the soil and decaying leaf litter on the woodland floor.

The pink coloured pincer claws have a poisonous gland to paralyse prey.

There are 26 species. Common.

They move slowly forwards with claws open but when disturbed shoot backwards and draw in claws.



light brown and buff

Actual size

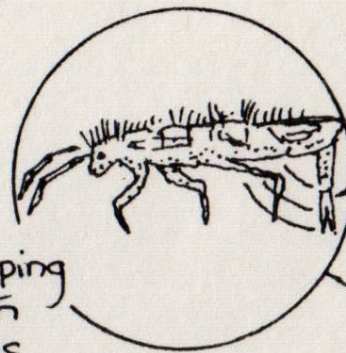
SPRING TAILS

300 species

Only thrive in moist conditions under leaves, rotting wood and soil. Turn over some leaves and wood and you will see them jumping by a spring mechanism underneath their bodies - A catch which holds the spring is released and the insect is flicked forward in the air.

Young springtails look like adults they do not have metamorphic stages. They live on dead plant material and are very abundant. They can jump a distance of 12" or more - equivalent to man jumping 250 - 300 yards.

They are primitive insects and are most important in the decomposition of organic material.



Spring

Actual size adult.

centipedes and millipedes are also found in leaf litter including woodlice and long legged harvestman which is related to spiders.

BRISTLE TAILS

9 species

The common silver fish sometimes found at home is a bristletail.

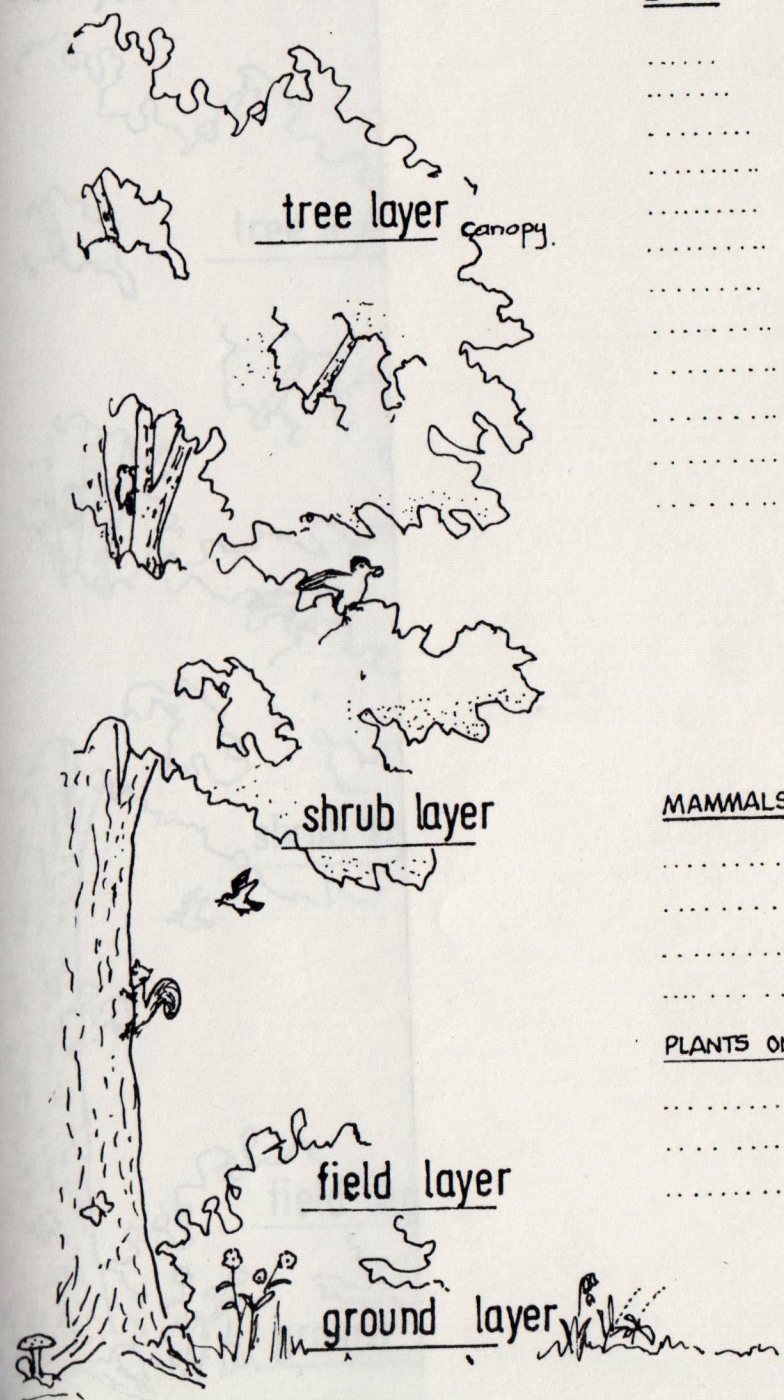
Like springtails they are wingless insects and the young look like the



adult.

Runs quite fast when disturbed. from 1/4" to 1/2" long.

Can you name some species :-



BIRDS

-
-
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MAMMALS

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PLANTS ON TRUNK

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INSECTS

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FLOWERS

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FUNGI

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TREES

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-

Can you name some species :-

BIRDS

- 3 WOODPECKERS . L & G spotted Green
TITS . Gt, Blue, Longtailed . Willow.
WOODCOCK
ROBIN
BLACKBIRD
WOODPIGEON
JAY
NIGHTJAR
TAWNY OWL
NUTHATCH
TREECREEPER
CHIFFCHAFF
WREN
CUCKOO

INSECTS

- MOTHS
BUTTERFLIES } and Caterpillars
SHIELD BUGS
BEETLES
ANTS
WASPS
Weevils
SPRINGTAILS
CRICKETS
Various FLY species
APHIDS
GALL WASPS

MAMMALS

- BADGER
FOX
SQUIRREL
WOOD MOUSE
DEER
PLANTS ON TRUNK

- LICHENS
MOSS

- FERN - Polypody
ALGAE

FLOWERS

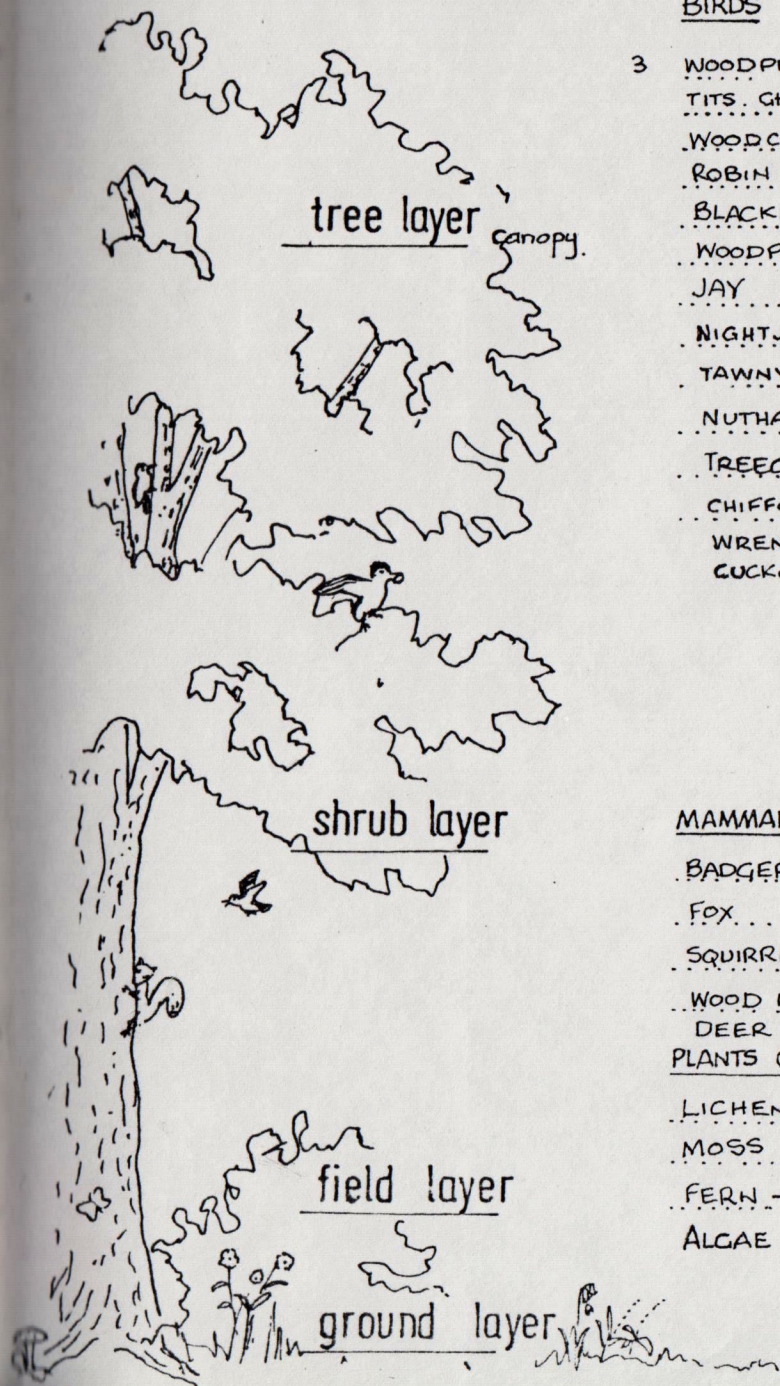
- BLUEBELL
PRIMROSE
WOOD SAGE
FOXGLOVE
RAMSON
WOOD ANEMONE
WOOD SORREL
DOG VIOLET

TREES

- OAK
HOLLY
BEECH
ASH
HAZEL
ROWAN
HORNBEAM
YEW

FUNGI

- BRACKET Polypores
PUFF BALL
FLY AGARIC
PARASOL MUSHROOM



GRASSLAND HABITAT



Very few untouched meadows and fields remain around Bexhill most have either been treated with fertilizers or Herbicides or simply left unmanaged which loses its diversity of flora and animals. The stronger grasses and vegetation shade out the smaller plants and small trees start to grow to turn it into scrubland.

The important meadows which contain the most diverse plant life are those which have never been ploughed and have been cut annually or grazed in late summer, and have not been treated in any way.

Rabbits are ecologically important in keeping the grass short so allowing the low growing flowers to thrive and the growth of vigorous grasses kept in check.

Such meadows contain the original plants and the cut grass is used for haymaking and winter fodder for cattle.

In these days of intensive agriculture, a heavier yield of hay is produced by ploughing and sowing selected grass seed such as Rye grass which of course is bad news for our indigenous flowers of the meadow. Many of the old meadow flowers grow on the verges of country lanes, generally these are the only examples left.

Another hazard is that the field may be cut too early so that the seed is not set.

If the field flora is affected by chemical or soil changes ie fertilizers, ploughing etc, then a proportional decline in insects* must result which may affect the populations of mammals (insectivores) reptiles and birds!

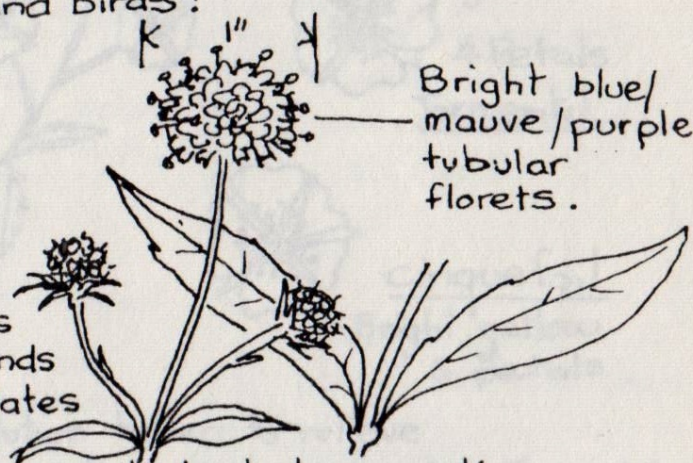
Some meadow flowers

DEVIL'S BIT SCABIOUS

Succisa pratensis

A tall flower - 1 to 2 feet.

A good nectar flower for bees and butterflies. The rootstock ends abruptly and a folk lore tale relates how the root was bitten off by the devil who was envious of the plants herbal properties.



* Bees and butterflies and other important pollinators.

For the purpose of the present investigation, the following specimens were selected from the collection of the British Museum, and the results of the examination are given in the following table. The specimens were all of the same species, and the results of the examination are given in the following table.

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THE RESULTS OF THE EXAMINATION

The results of the examination are given in the following table. The specimens were all of the same species, and the results of the examination are given in the following table.

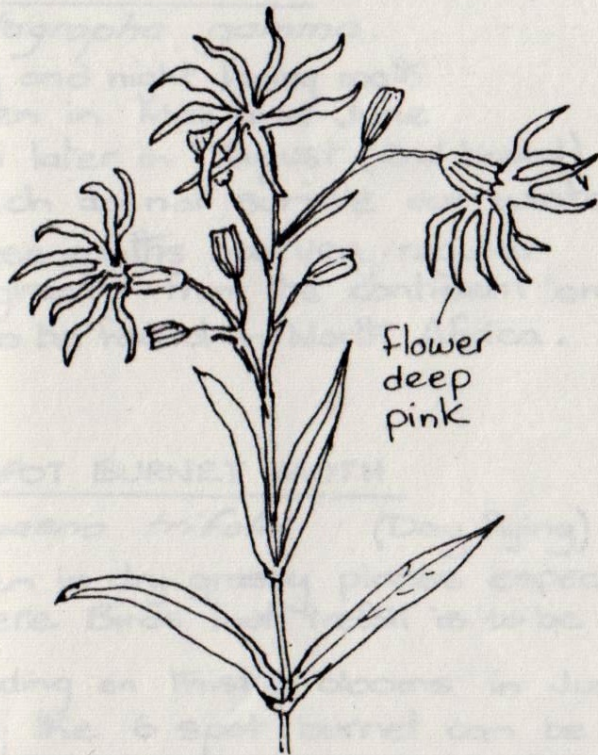
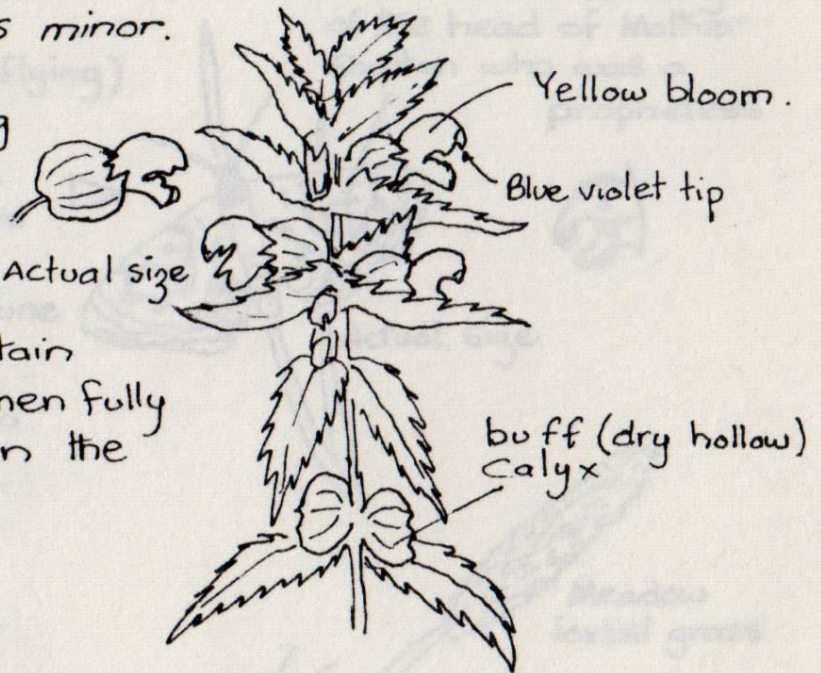
The results of the examination are given in the following table. The specimens were all of the same species, and the results of the examination are given in the following table.

Meadow flowers continued :-

YELLOW RATTLE *Rhinanthus minor*.

5" to 12" tall
Semi parasitic by drawing nourishment from the roots of grasses - can be found in old meadows and generally dry ground.

The large podlike calyx contain flat brown seeds which when fully ripe 'rattle' quite audibly in the summer breezes.
Also called hay rattle



▷ RAGGED ROBIN *Lychnis flos cuculi*

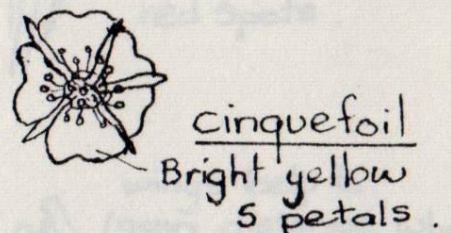
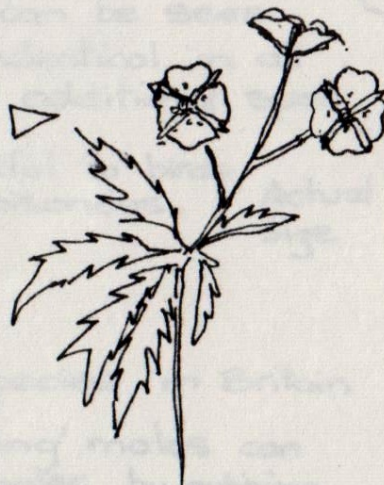
Grows 12" to 16" in damp meadow marshy places.
thin stems.

Flowers May and June.

In folklore the name 'Robin' is linked with goblins, so it discouraged picking

▷ TORMENTIL (*Potentilla erecta*) sprawling.

Common in grassy places around Bexhill
Similar to Cinquefoil but has 4 petals compared with the Cinquefoil which has 5 petals.



The roots were boiled and the solution taken to relieve pains or 'torment' of the stomach. An extract from Tormentil was used by fishermen in the Hebrides to preserve their nets.

Meadow flowers

continued

Yellow Rattle *Rhinanthus minor*

2" to 12" tall
Semi parasitic, by drawing
nourishment from the roots
of grasses - can be
found in old meadows
and generally dry ground. Actual size
The large seed like capsule contains
flat brown seeds which when fully
ripe 'rattle' quite loudly in the
summer breezes
Also called hay rattle



Yellow bloom

the violet tip

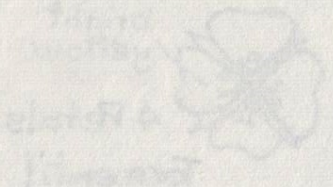
Capsule (top bottom)



Flower
deep
pink

▶ RAGGED ROBIN

Lythrum flos-caryophylli
Stems 12" to 16" in clump
meadow marshy places
the stems
flowers deep red
a folklore the name Robin
is linked with children as
it discouraged picking



bright
yellow
4 petals
fragrant



Cupressata
bright yellow
5 petals

▶ TORMANTIL (cattle
weed)

Spreading
Common in grassy
places around dwellings
Similar to Cuckoo
but has 4 petals
compared with the
Cuckoo which has 5
petals.

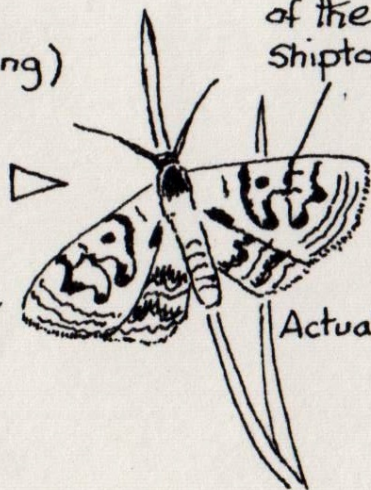
The roots were boiled and the decoction taken to relieve
pains or 'cramps' of the stomach. An extract from the roots
was used by the Chinese in the 16th century to preserve their
meat.

Moths of the meadow...

MOTHER SHIPTON MOTH (Day flying) *Callistege mi*

If you find a field of tall grass with some flowers look for this delightful moth which can only be seen between May and June

If you do not see it during these months you will have to wait until the following year.



shaded brown markings of the head of Mother Shipton who was a prophetess



Actual size

SILVER Y MOTH


Autographa gamma.

Day and night flying moth seen in May and June and later in August (2nd brood) which do not survive our winters.

These moths are very regular migrants from the continent and is to be found in North Africa.



Meadow foxtail grass

Mottled grey brown moth with a vivid white upside down letter 'Y' 

Actual size

5 SPOT BURNET MOTH

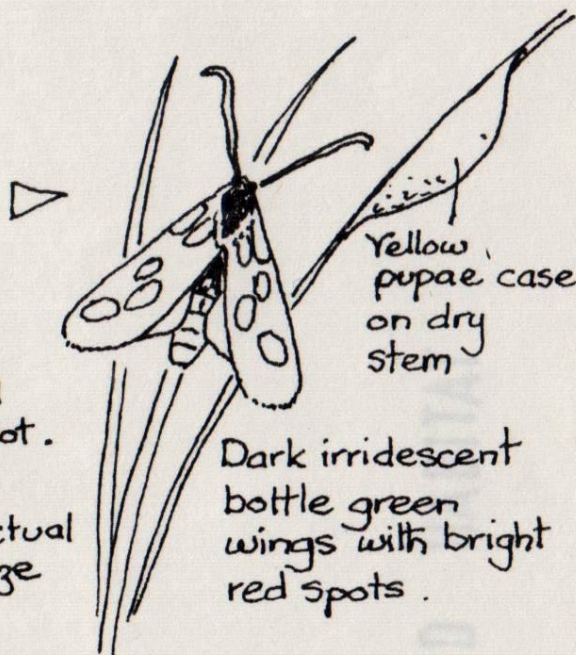
Zygaena trifolii (Day flying)

Seen in dry grassy places especially where Birds foot trefoil is to be found.

Feeding on Thistle blooms in June and July the 6 spot burnet can be seen with the 5 spot and look identical in all respects except for the additional spot.

These moths are distasteful to birds and their body fluids poisonous.

Actual size



Yellow pupae case on dry stem

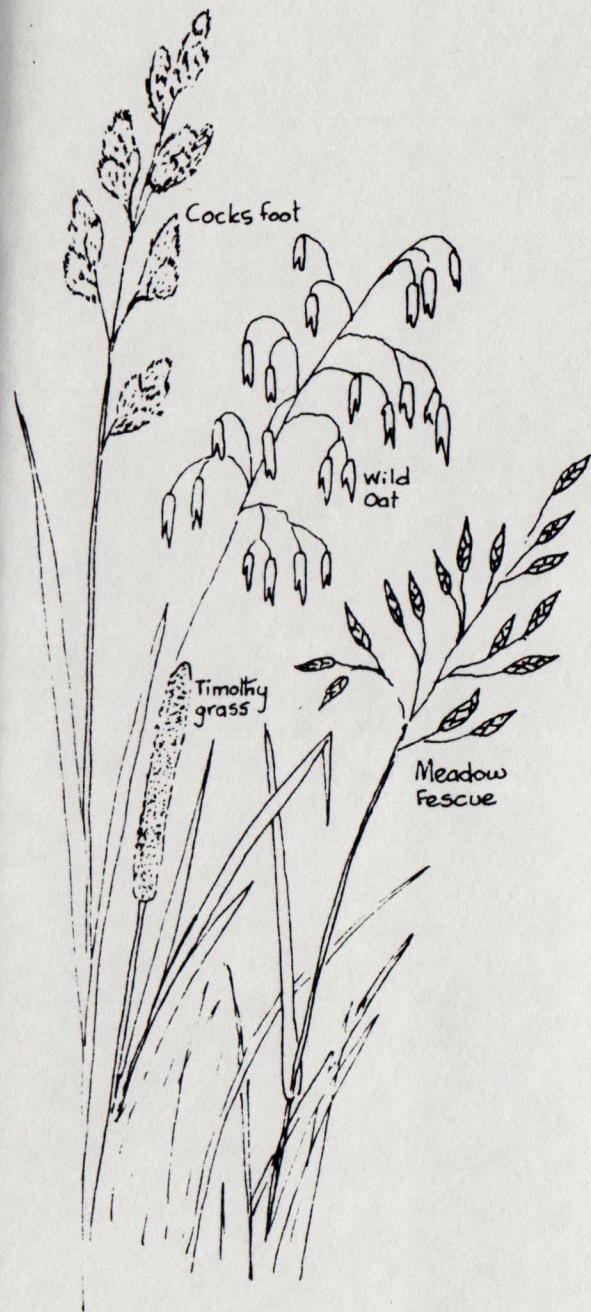
Dark iridescent bottle green wings with bright red spots.

Grasshoppers

11 species in Britain

On hot sunny days 'singing' males can be heard attracting females by rubbing hind legs on the wings producing this 'sandpapering' sound. Grasshoppers hatch from eggs (which are under the grass in the soil) as miniature adults. They grow casting their skin every so often.





FLORA

Common spotted orchid
birds foot trefoil
Yarrow
Dandelion
Clovers
Field buttercup
Black knapweed
ladies smock
Ribwort plantain
Tufted vetch
Ox eye daisy
Lesser hogweed
Ragwort
and those on pages 27-28
Ox tongue
catsear.

INSECTS.

Ants
Butterflies
- Common blue
- Small copper
- Meadow brown
- Gatekeeper
- Small tortoiseshell
- Peacock
- Small/Large skippers.
Moths page 29
Grasshoppers
Beetles
- Click
- Ladybird
- Soldier
- Dung
- Carrion
Froghoppers.
Craneflies
Flies
Bees.

MAMMALS

Rabbit
field mouse
field vole
Weasel
Shrews
Harvest Mouse

REPTILES

Common Lizard
Grass snake

BIRDS.

Meadow pipit
Linnet
Goldfinch
Stonechat
Kestrel
White throat
Barn owl
Little owl

Skylark.
Song Thrush
Mistle Thrush
Field fare
Starling

GASTROPODS

Grove snail
Banded snail

SPIDERS.

STREAMS AND PONDS

Have you noticed the difference between a pond situated in a open field and a pond shaded by trees in a wood? The pond or lake in the open sunlit aspect teems with life, both plant and creatures as compared with the lifeless water in a wood which is shaded by trees.

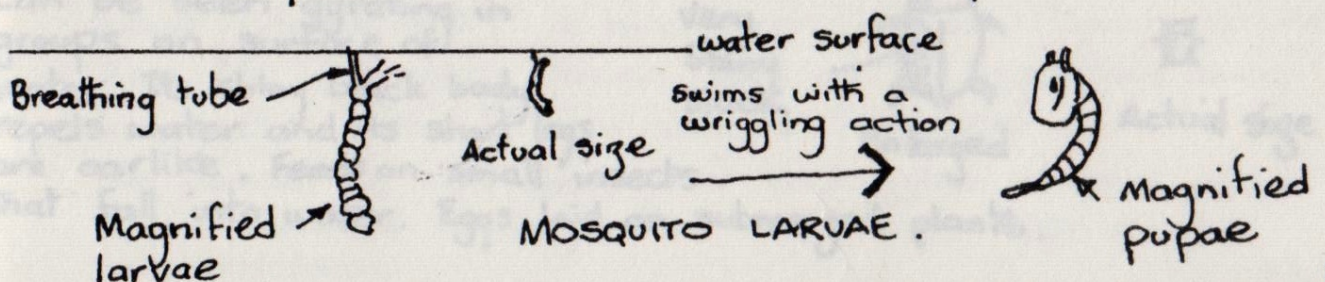
Why is this - Plants exist and need sunlight in order to thrive and give off oxygen which is most necessary for creatures and most animal life, whereas the pond in woodland generally does not receive this life giving element. The leaves fall from the trees in the autumn and gradually build up and decay on the bed of the pond. The decay makes smelly gases and the water loses its oxygen without which most aquatic life soon die.

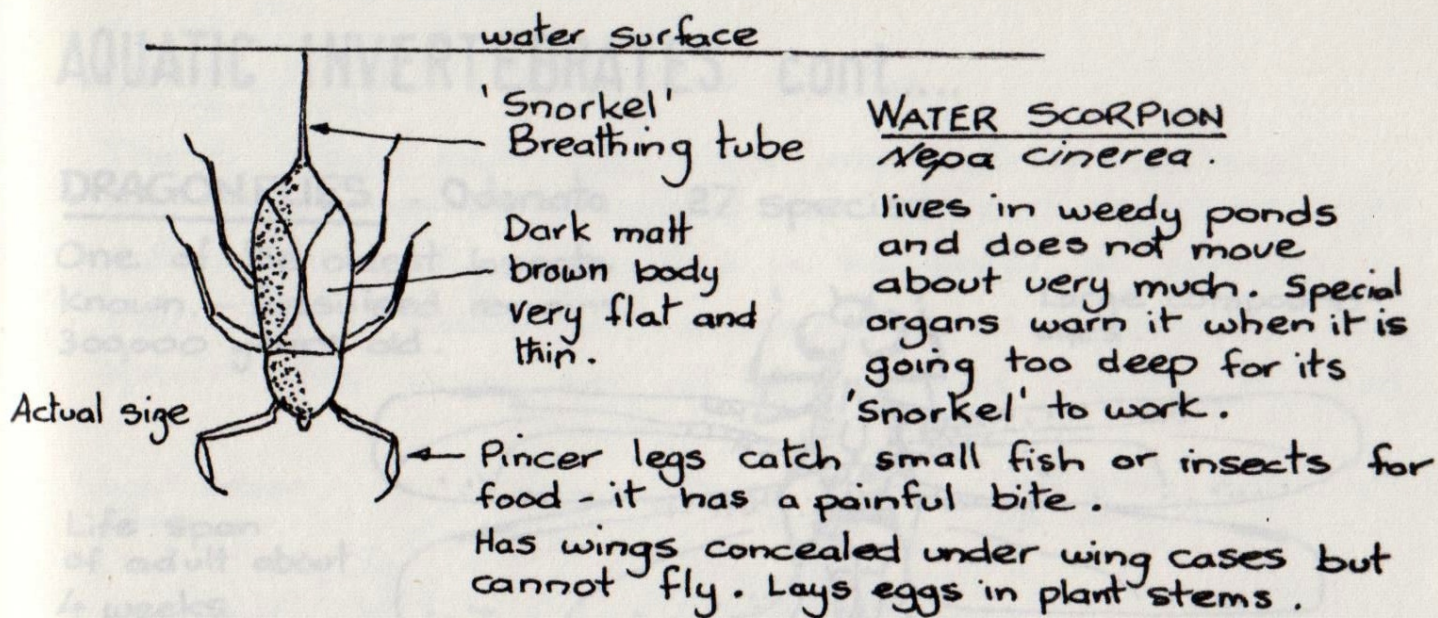
So remember if you create a pond form it out in the sunlight for it to be healthy. All creatures living in water must have air. If the air is expelled or not present as in boiled water they will drown.

The balance is delicate - if the water is contaminated by fertilisers from surrounding land the vegetation especially algae will increase tremendously, choking the water and creating an imbalance, the algae dies and its decay may exhaust the oxygen in the water.

Moving water as in streams usually maintain their 'freshness' and oxygen. Water may dry up in the summer but most creatures have developed from the larval stage into winged adults and fly off, others produce drought resistant eggs which hatch at the return of water.

Water has a surface film which is used by creatures such as pond skaters and whirligig beetles - the film is created by tensions between water molecules and is pierced by breathing tubes of mosquito larvae and the water scorpion.



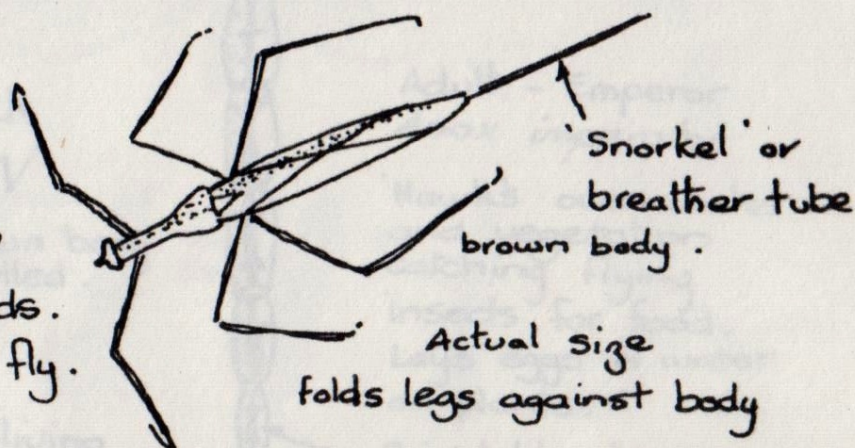


WATER STICK INSECT
Ranatra linearis

Related to water scorpion with similar habits.
Good camouflage in weeds.

Also has wings but cannot fly.

Only found in Southern Britain. Found in shallow weeded ponds around Bexhill as water scorpion, and also is a carnivore.



WATER BOATMAN 4 species



Actual size

Grey brown, yellow boatman are carnivorous and swim upside down using powerful oar like strokes of its legs.

Can pierce a tadpole or tiny fish with its mouth parts and injects a poison into its victim. It will bite fingers!.

When diving it carries an air bubble held by bristles on its body. giving a silvery appearance.

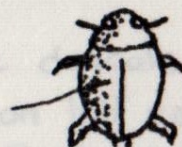
Boatman fly from pond to pond usually on warm evenings.

Very common in still water - can be found in cattle drinking troughs.

WHIRLIGIG BEETLE. *Gyrinus natator*

Can be seen gyrating in groups on surface of water. Its shiny black body repels water and its short legs are oarlike. Feeds on small insects that fall into water. Eggs laid on submerged plants.

Very Shiny black



Enlarged



Actual size

Snorkel
Breathing tube
Dark web
Green body
Very fat and
thick



Actual size

Water Scorpion
Zygoptera

lives in weedy ponds
and does not move
about very much. Spends
most of its time
going too deep for its
snorkel to work.
Pincer legs catch small fish or insects for
food - it has a powerful bite.
Has wings concealed under wing cases but
cannot fly. Lays eggs in plant stems.

Water Stick Insect
Dermaptera

Related to water scorpion
with similar habits.
Good camouflage in weeds.
Also has wings but cannot fly.
Only found in southern
Britain. Found in shallow
weeded ponds around Oxford, and also in
a cave.



Actual size
Holds legs against body

Snorkel
Breathing tube
Green body

Water Boatman 4 species

Grey brown, yellow boatman are commonest
and swim upside down using powerful air
like strokes of its legs.
Can pierce a tadpole or fish with its
mouth parts and injects a poison into its
victim. It will bite humans!
When dining it comes on its back held by pinches on its legs.
Spined or soldier appearance.



Actual size

Boatman fly from pond to pond usually on water currents.
Very common in still water. Can be found in other drinking tanks.

Whirligig Beetle 4 species

Can be seen quivering in
groups on surface of
water. Its shiny black body
repels water and its short legs
one on each side. Feeds on small insects
not far into water. Eggs laid on submerged plants.



Enlarged

Very
shiny
black



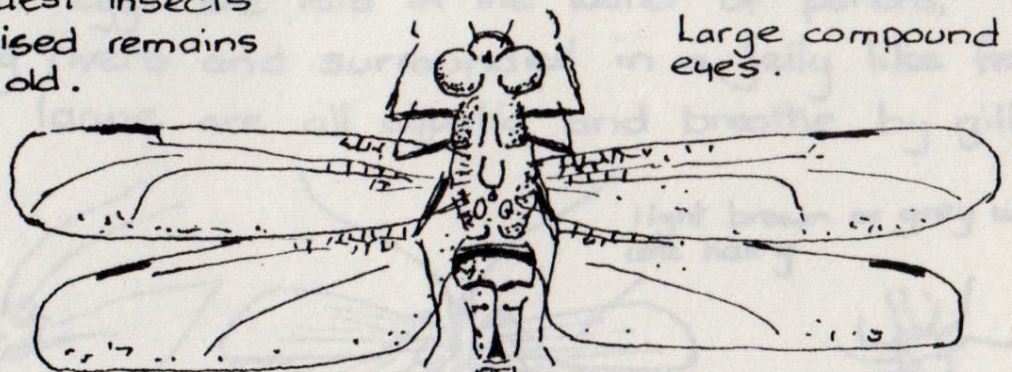
Actual size

AQUATIC INVERTEBRATES cont....

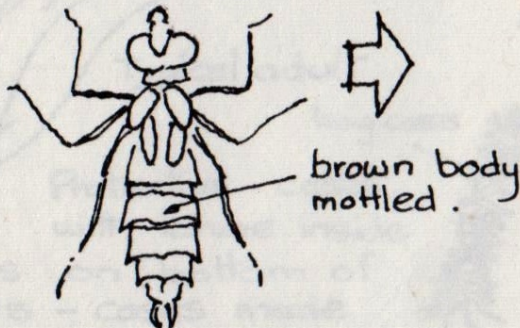
DRAGONFLIES - Odonata 27 species

One of the oldest insects known. - fossilised remains 300,000 years old.

Life span of adult about 4 weeks



Large compound eyes.



Actual size

brown body mottled.

Adult - Emperor
Anax imperator

Hawk's over water and vegetation catching flying insects for food. Lays eggs in water on plants.

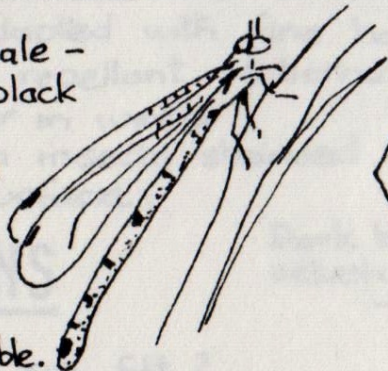
Bright blue body

A typical underwater living larvae of a dragonfly. (called a 'Nymph') which is carnivorous.

There is no pupae stage, when larvae is fully grown after 2 or 3 years it climbs up a stem out of the water and the adult breaks out of the larval skin. (some species take 5 years to mature)

DAMSELFLIES 17 Species (3 common in Bexhill)

Body of Male - Blue with black markings (There is a red bodied species Common to Bexhill)
Females variable.



Larvae (actual size) lives under water (also called a nymph) and is carnivorous.

Its life history is basically as that of the dragonfly

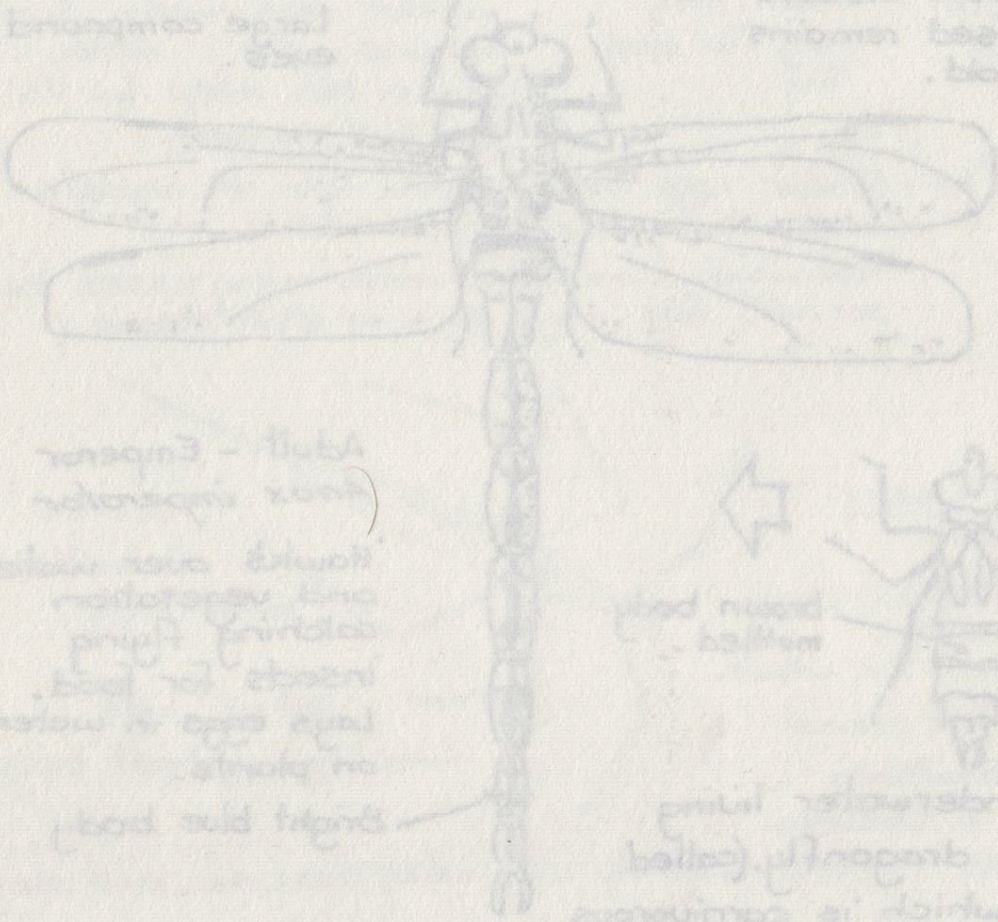
Adult (Actual size) A much more delicate flying creature than the dragonfly. Found also on tall vegetation away from water. Seen from May to September.

The damsel fly has wings over back when at rest which is in contrast to dragonflies which rests with wings outstretched.

DRAGONFLIES . Odonata 57 species

One of the oldest insects known - fossilised remains 300,000 years old.

Life span of adult about 4 weeks



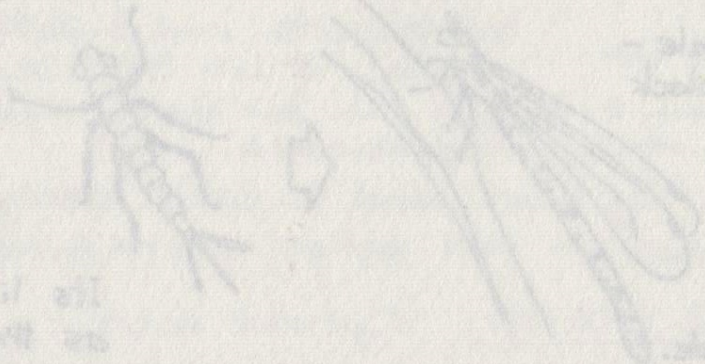
Adult - Emperor
flies over water
and vegetation
collecting flying
insects for food.
Lays eggs in water
on plants.
Bright blue body



Actual size

A typical underwater living larvae of a dragonfly (called a 'Nymph') which is carnivorous. There is no pupal stage, when larvae is fully grown after 2 or 3 years it climbs up a stem out of the water and the adult emerges out of the larval skin. (Some species take 5 years to mature)

DAWSELFLIES 17 species (3 common in British)



Body of male - blue with black markings (There is a red patch on the abdomen)
Common to British
lakes and rivers.

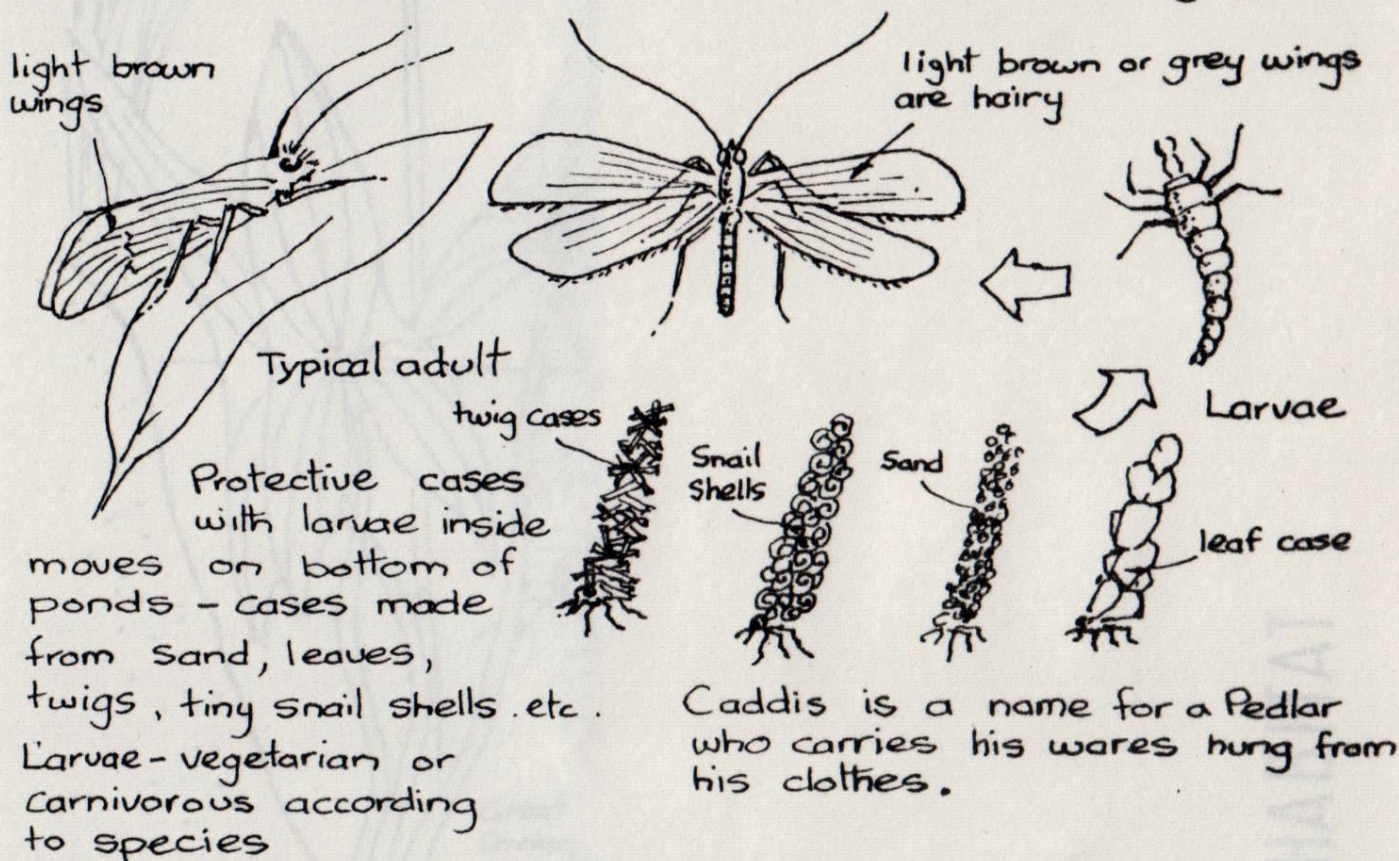
Larvae (called 'Zygote') lives under water (also called a nymph) and is carnivorous.

Its life history is basically as that of the dragonfly.

Adult (Actual size) A much more delicate flying creature than the dragonfly. Found also on tall vegetation away from water. Seen from May to September.
The damselfly has wings over back when at rest which is in contrast to dragonflies which rest with wings outstretched.

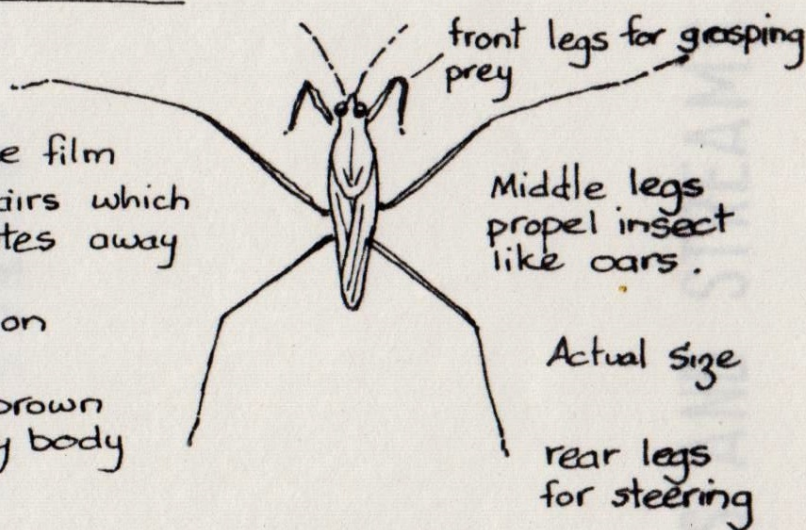
CADDIS FLIES Nearly 200 Species

These brown moth like flies are mainly nocturnal and they may be attracted to artificial light at night with moths. Eggs are laid in the water of ponds, slow moving rivers and surrounded in a jelly like frog spawn. The larvae are all aquatic and breathe by gills.



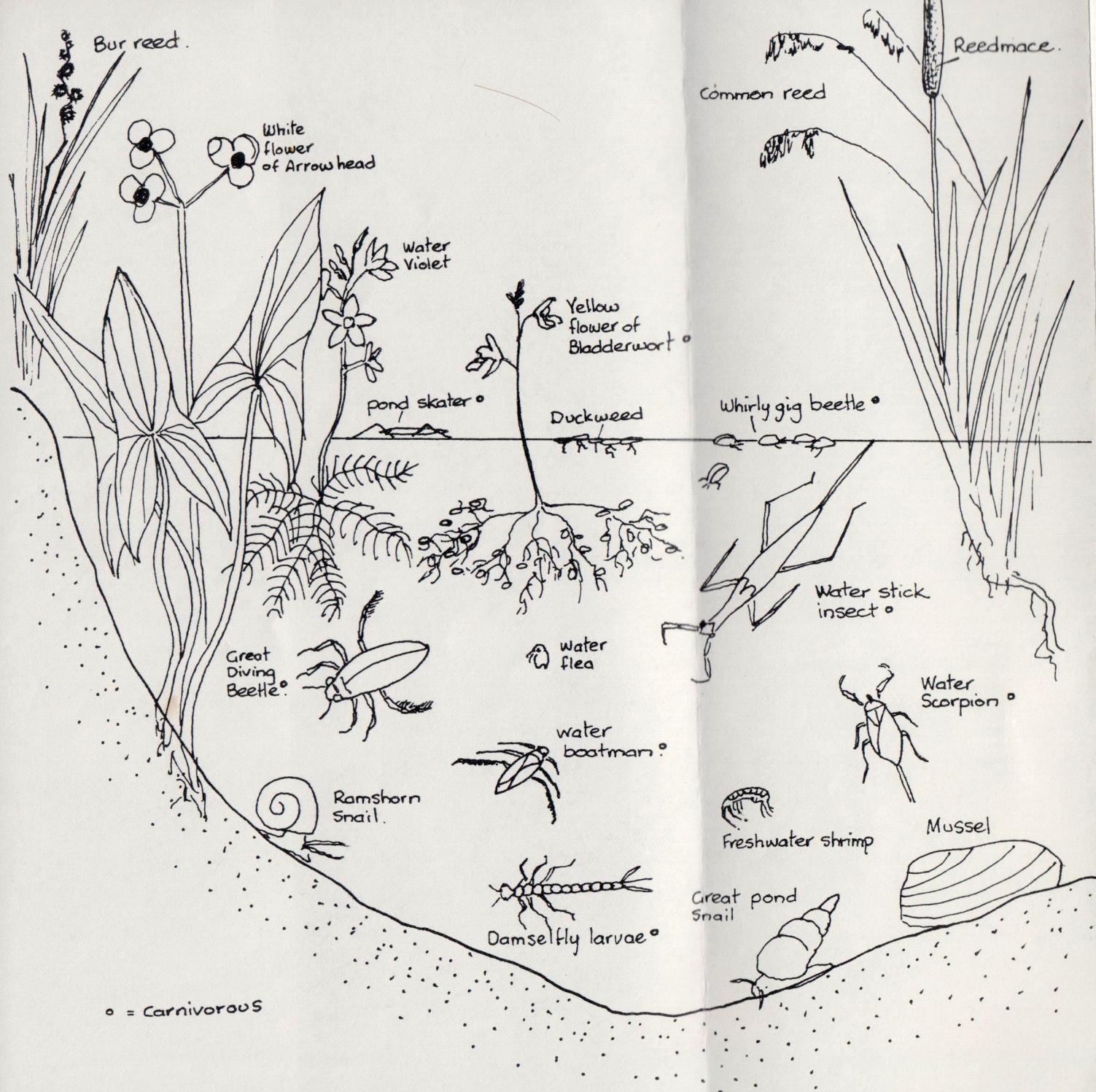
POND SKATER Gerridae

Skates fast on water surface film feet is adapted with fine hairs which are water repellant - hibernates away from water in winter Feeds on insects stranded on water surface.



QUESTIONS

1. What is an Eft ?
2. What are desmids ?
3. Male newt with webbed feet ?
4. Newts lay eggs in lines or chains True or false ?



INDEX TO WOODLAND HABITAT

(illus.) = illustration only

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